Year 12

nuast
Nottingham University Academy of Science and Technology

"The sixth form is outstanding. Students make extremely good progress and are very well prepared for the next steps in their education, training or employment as a result of the strong teaching and care that they receive."

Ofsted (June 2017)

NOTTINGHAM UNIVERSITY ACADEMY OF SCIENCE AND TECHNOLOGY

Contents

Introduction to NUAST

Welcome to 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 11 and 19 the opportunity to study in a purpose-built, fully-equipped, state-of-the-art facility.

Working in collaboration with the University of Nottingham, NUAST has been developed to bring secondary education, business and academia together in a way that gives our 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 working day starts at 8.30am and finishes at 3.45pm Monday–Wednesday, 3.00pm on Thursday and 2.15pm on Friday. Built into the working week are opportunities for supervised study and enrichment activities. To allow extended time for enrichment activity, school finishes at 3.45pm Monday–Wednesday.

Students can join NUAST in Year 12 for A-Level and BTEC study. You can find out more about NUAST 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.

"Leaders have high aspirations for pupils and a clear vision to support them to succeed."

Ofsted (June 2017)

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 unique opportunity to study a broad and balanced curriculum in a building that has been designed and equipped to allow specialist study in Science, Technology, Engineering and Mathematics (STEM) curriculum areas.

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. 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

SIEMENS

Rolls-Royce

TOSHIBA
Leading Innovation

experian

Natgraph

SPE
SWIFTOOL
PRECISION ENGINEERING

Links with business

Alongside our collaboration with 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, Natgraph, Swiftool Precision Engineering, SMS Electronics, Experian, Esendex, MediCity, Greene Tweed, Far Composites, Autodesk and many more.

Links with the University of Nottingham

One of the things that makes studying at NUAST such a unique experience is our collaboration 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 post-18 options workshops, study skills and revision workshops, UCAS application workshops (personal statements, interview skills, additional admissions tests, Student Finance etc.).

Developing STEM Education

At NUAST, we work closely with the local community and share our resources and expertise with all those who can benefit from them. We are leading work locally to inspire students to study and build careers in Science, Technology, Engineering and Mathematics (STEM).

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 students 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:

- Television
- Antibiotics
- Hearing Aid
- Atomic Clock
- Jet Engine
- Radar
- Atomic Energy
- Cat's Eyes
- Hovercraft
- Text Messaging
- Fibre Optics
- The Internet
- Animal Cloning
- Ejector Seat
- Vacuum Cleaner
- Sonar

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.

Apprenticeship[1]

23,000

new apprentice jobs pledged for National Apprenticeship Week

Undergraduate[2]

98,000

students accepted onto STEM undergraduate courses in 2014

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

NOTTINGHAM UNIVERSITY ACADEMY OF SCIENCE AND TECHNOLOGY

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[1]

Medical Practitioners
£69,463 +

Science and Research Professionals
£41,685 +

Physical Scientists
£50,763 +

Production Managers and Directors in Engineering
£49,960 +

Electrical Engineers
£41,685 +

Engineering Professionals
£41,453 +

IT Project and Programme Managers
£48,144 +

Programmers and Software Development
£40,748 +

IT Analysts and Systems Designers
£46,197 +

Employment Opportunities[2]

The Royal College of Engineers estimates that by 2020

880,000

science, engineering and technology professionals will be required to replace existing skills and meet new demand

The Social Market Foundation calculates that we need

40,000

extra STEM graduates every year if we are to meet the current annual shortfall

Engineering UK forecasts that by 2020 the UK will need to recruit

1.86 million

people with engineering skills, including a net increase of 204,400 new jobs

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

Achievement

Students at NUAST have once again delivered outstanding A-Level and Level 3 qualification results this summer:

54% of entries were graded A*–A grade

89% of entries were graded A*–C grade

99% pass rate at A-Level

Average Technical Subject grade was Distinction* (equivalent to A* at A-Level)

The value-added score (the measure of achievement based against students' previous performance at GCSE level) is very high at 0.32, which is one of the best in the City and County of Nottingham and once again positions NUAST as one of the top-performing sixth forms in the East Midlands. Our average outcome at A-Level is grade B.

Students studying vocational courses in Engineering and ICT have achieved remarkable results with the average grade being Distinction+.

80% of our students have managed to get their first choice university course or apprenticeship placement. Top destinations include:

- University of Oxford
- University of Cambridge
- University of Warwick
- University of Manchester
- University of Nottingham
- University of Leeds
- BAE Systems
- JCB
- AECOM
- Druck Engineering
- Swiftool Precision Engineering

NOTTINGHAM UNIVERSITY ACADEMY OF SCIENCE AND TECHNOLOGY

"I'm really looking forward to going to Cambridge and taking my passion for science to the next level. I want to specialise in Physics and learn more about how the world around us works."

Zongyuan Wang (Science student)
Destination: University of Cambridge

2019 results

54% of entries were A*–A grade

89% of entries were A*–C grade

99% pass rate

Value-added 0.32

2018 results

54% of entries were A*–A grade

86% of entries were A*–C grade

100% pass rate

Value-added 0.42

nuast Teardown

Lifting the lid on Nottingham's 'outstanding'* STEM sixth form

*NUAST Sixth Form Ofsted Outstanding June 2017

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.

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.

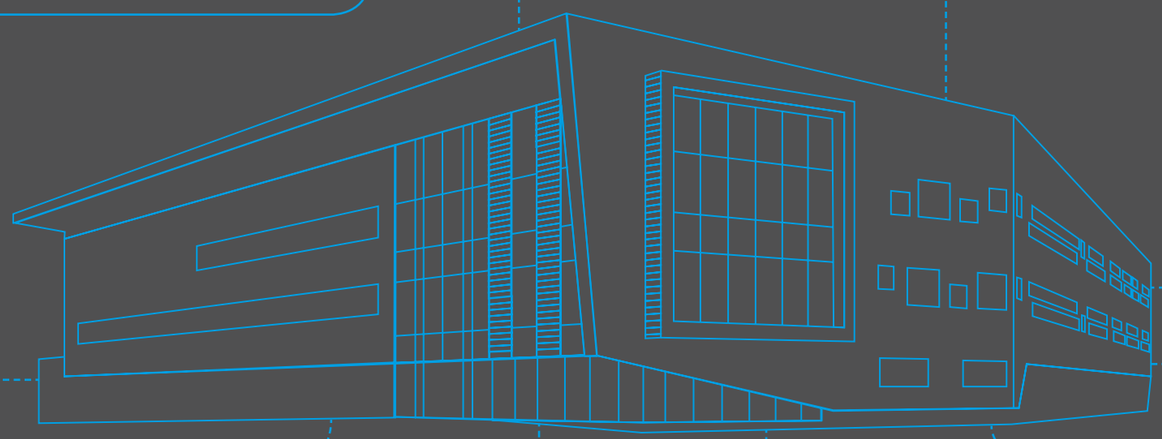
Collaboration with the University of Nottingham and supported by industry and business

With the 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, Natgraph 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.

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

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

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

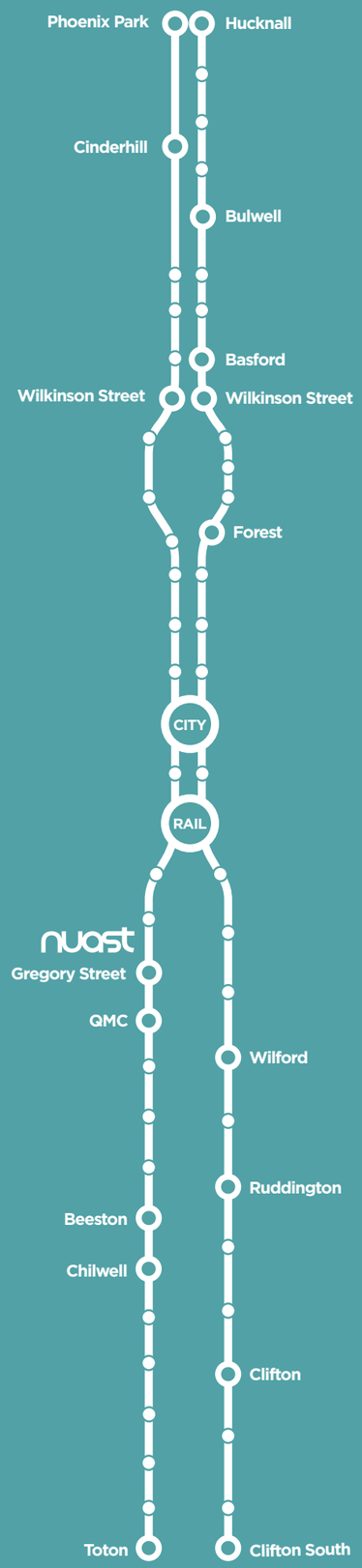
The Nottingham Express Transit (NET) tram stops regularly at the new QMC tram stop opposite NUAST on the Toton Line. This makes NUAST easy to access from Nottingham city centre, Beeston, Basford, Bulwell and Hucknall. By using the tram, journey times to Old Market Square takes only 15 minutes and travelling 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 47 for a map of cycle routes.



"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!"

NUAST student

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.

VEX ROBOTICS

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.

4 x4 IN SCHOOLS technology challenge

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.

F1 IN SCHOOLS

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.

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 examination requirements and beyond. At NUAST, we believe in achievement, but we also believe that learning does not end with the requirements of the examination 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.

NOTTINGHAM UNIVERSITY ACADEMY OF SCIENCE AND TECHNOLOGY

Sixth Form pathways explained

Year 12 start

16+ A-Level Science, IT, Engineering and Maths

Plus additional A-Level (GCE) subjects and EPQ

16+ A-Level Social Sciences with English and Humanities

Plus additional A-Level (GCE) subjects and EPQ

A-Level subjects available*

Physics
Chemistry
Biology
Computer Science
Mathematics
Further Maths
Product Design
Engineering Design
English Language
English Literature
Geography
History
Law
Business Studies
Economics
Sociology
Psychology

*Dependent on demand

BTEC Science Pathway

BTEC National Extended Diploma and EPQ

BTEC Level 3 National Extended Diploma in Applied Science

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.

Complementary A-Level option and EPQ

BTEC Engineering Pathway

BTEC National Extended Diploma and EPQ

BTEC Level 3 National Extended Diploma in Engineering

At Post 16 NUAST offers the BTEC Level 3 Extended Diploma in Engineering. Broken down into 18 units, this course is designed to give you a firm grounding in engineering principles through practical experience.

Supported by our industry partners, you will be taught over 20 teaching sessions a week leading to a qualification equivalent to three A-Levels.

Complementary A-Level option and EPQ

Cambridge Technical IT Pathway

Cambridge Technical Extended Diploma and EPQ

Cambridge Technical Level 3 Extended Diploma in IT

At Post 16, you will have the chance to study a Cambridge Technical Extended Diploma in Information 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 18 units and be supported by industry partners providing you with a comprehensive grounding in the working practices of an IT professional.

Complementary A-Level option and EPQ

University course

Year 13 finish

Apprenticeship

NOTTINGHAM UNIVERSITY ACADEMY OF SCIENCE AND TECHNOLOGY

A-Level pathway

General entry requirements: We have general entry requirements for entry to study A-Levels at NUAST and some subjects have specific requirements. The general entry requirements are **an average grade of 5 across your GCSE subjects**. In addition to this, we cannot accept any student who achieves below a grade 4 in Mathematics or English (both English GCSEs) under any circumstances.

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

Specific entry requirements

Grade 6 in GCSE Biology or 6/5 in Combined Science.

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 of the world of chemistry.

How are you assessed?

100% examination

Specific entry requirements

Grade 6 in GCSE Chemistry or 6/5 in Combined Science.
Grade 6 in GCSE Maths.

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

Specific entry requirements

Grade 6 in GCSE Physics.
Grade 6 in GCSE Maths.

Mathematics

Exam Board: **Edexcel**

What will you learn?

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

The statistics unit teaches you how to test hypotheses reliably. All sciences, from Geography to economics to particle physics need statistical proof. Finally, the mechanics section teaches you the mathematics behind a lot of what you learn in physics and engineering.

Maths is a fun but very challenging qualification, which is why we ask for a minimum of a grade 6 in GCSE maths but would encourage anyone with less than grade 7 to consider carefully before choosing the course. It is a subject that requires real commitment and love of maths as ingredients for success.

How are you assessed?

100% examination

Specific entry requirements

Minimum requirement is Grade 6 in GCSE Maths, but this course is not recommended for students with less than grade 7.

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 of algebra. You will also extend applied mathematics in your studies of mechanics and statistics to prepare you more thoroughly for study in a STEM-based degree.

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

How are you assessed?

100% examination

Specific entry requirements

Grade 8 in GCSE Maths.

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

Specific entry requirements

Completion of GCSE Computer Science is recommended.

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

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

NOTTINGHAM UNIVERSITY ACADEMY OF SCIENCE AND TECHNOLOGY

A-Level pathway continued

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

How are you assessed?

80% examination
20% coursework

Specific entry requirements

Grade 6 in GCSE History or grade 8 in GCSE English.

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

Geography

Exam Board: **AQA**

What will you learn?

Geography at A-Level provides a detailed yet holistic approach to Geography, building on the fundamentals learnt at GCSE. You will study topics varying from the 'typical' coasts and hazards to changing places, water and carbon cycles plus global systems and global governance, which looks not only at the issues of globalisation and trade markets, but also the ownership issues of 'global commons' such as Antarctica.

The 3,000–4,000-word NEA provides excellent fieldwork opportunities to investigate a hypothesis of your choosing which links to any part of the specification, whilst applying and developing research, enquiry and practical skills. The course sets you up with transferable but also subject specific skills and knowledge to prepare them for higher education or employment.

How are you assessed?

80% examination
20% coursework

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

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

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

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

Specific entry requirements

Grade 6 in GCSE Maths.

BTEC Level 3 National Extended Diploma in Applied Science

(Equivalent to three A-Levels)

Entry requirements: Grade 9–5 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:

- **Principles 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 NUAST.

BTEC Level 3 National Extended Diploma in Engineering

(Equivalent to three A-Levels)

Entry requirements: Grade 9–5 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 9–5 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 NUAST, 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.

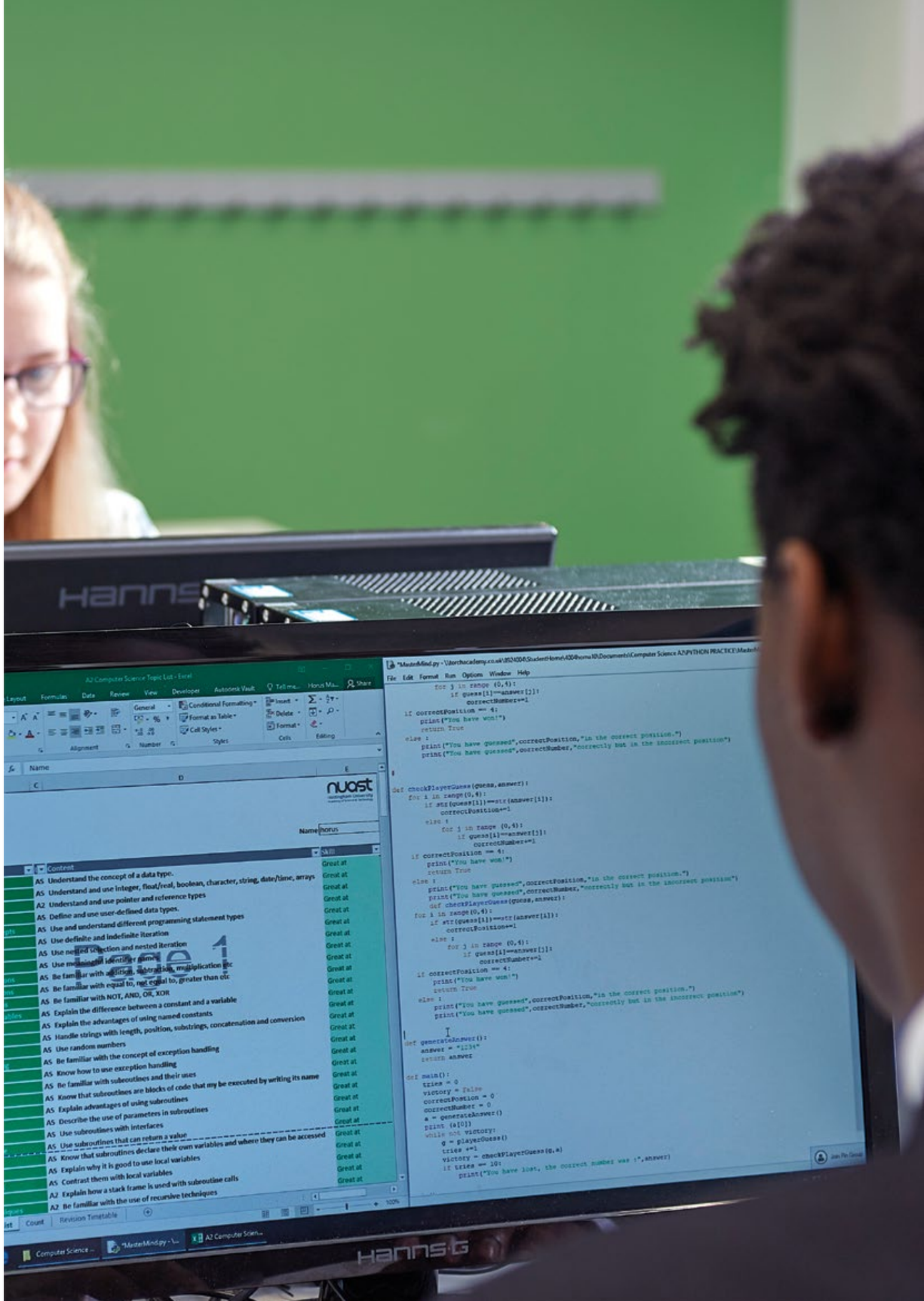
Mandatory units include:

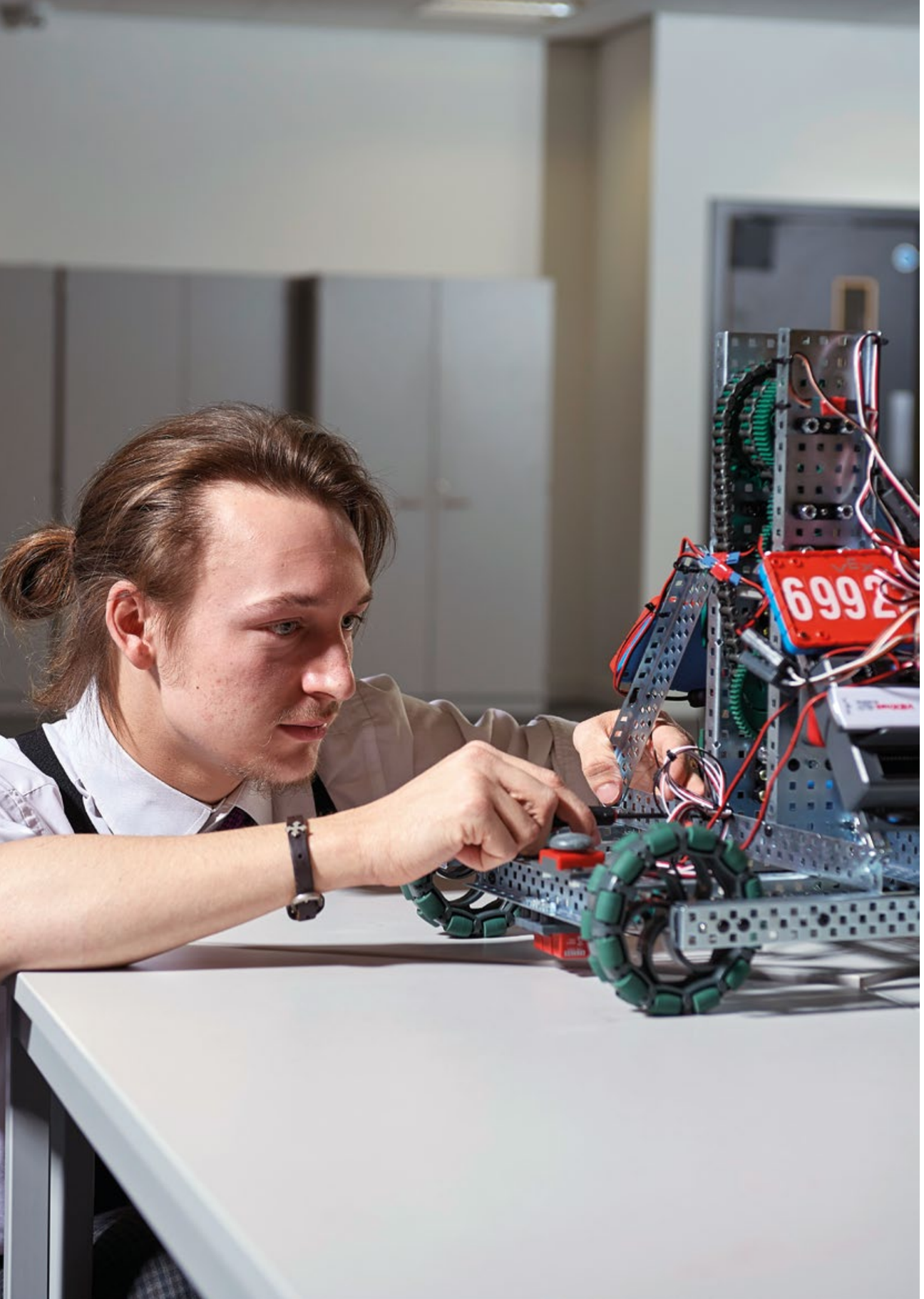
- **Fundamentals of IT**
- **Global Information**
- **Cyber Security**
- **Cloud Technology**

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 (EPQ)

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 can 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.

Careers support and future destinations

UCAS applications

Ensuring NUAST students can access undergraduate courses at the very best universities is a key priority for the academy. As a small, specialist academy we can offer the care, support and guidance students need to ensure they apply for the right courses, jobs or higher apprenticeships.

To ensure that our students receive the very best advice and guidance when applying through UCAS, we have teamed up with the University of Nottingham admissions team. They are providing training, advice and support to our students and staff, offering an invaluable insight into how to deliver the very strongest applications.

In addition we have an experienced school leader as our pastoral Head of Post 16. Andrew Edwards oversees the induction, mentoring and academic progress of our students along with his mentor team. Andrew also leads the UCAS process and employment/higher apprenticeship applications.

Apprenticeships

The unique nature of the courses offered by NUAST mean that our students are well equipped to access university or higher apprenticeships. Unlike with UCAS, the pathway to securing a higher apprenticeship requires specialist knowledge and support. At NUAST we not only have the experience to guide our students through that process but can use our unrivalled links with local business to access the very best apprenticeship opportunities in the region.

With so many of our business partners regularly visiting us, every day at NUAST is a potential job interview. Since opening in September 2014, we have already had students offered positions through enrichment activities and company placements.

How to apply

We are currently accepting applications for September 2020 for Year 12 students.

We understand that choosing the right academy is a very difficult decision. We would encourage you to come and meet us before making a final decision. The Head of Sixth Form will always endeavour to be available to meet you.

By meeting one of the team, you can talk through any questions you might have and we can provide you with all the latest news regarding the exciting enrichment activities and industry links that make NUAST such a unique academy.

The actual application process for a Year 12 place at NUAST is very straightforward. You can apply directly for Year 12 places through our website.

We look forward to hearing from you soon.

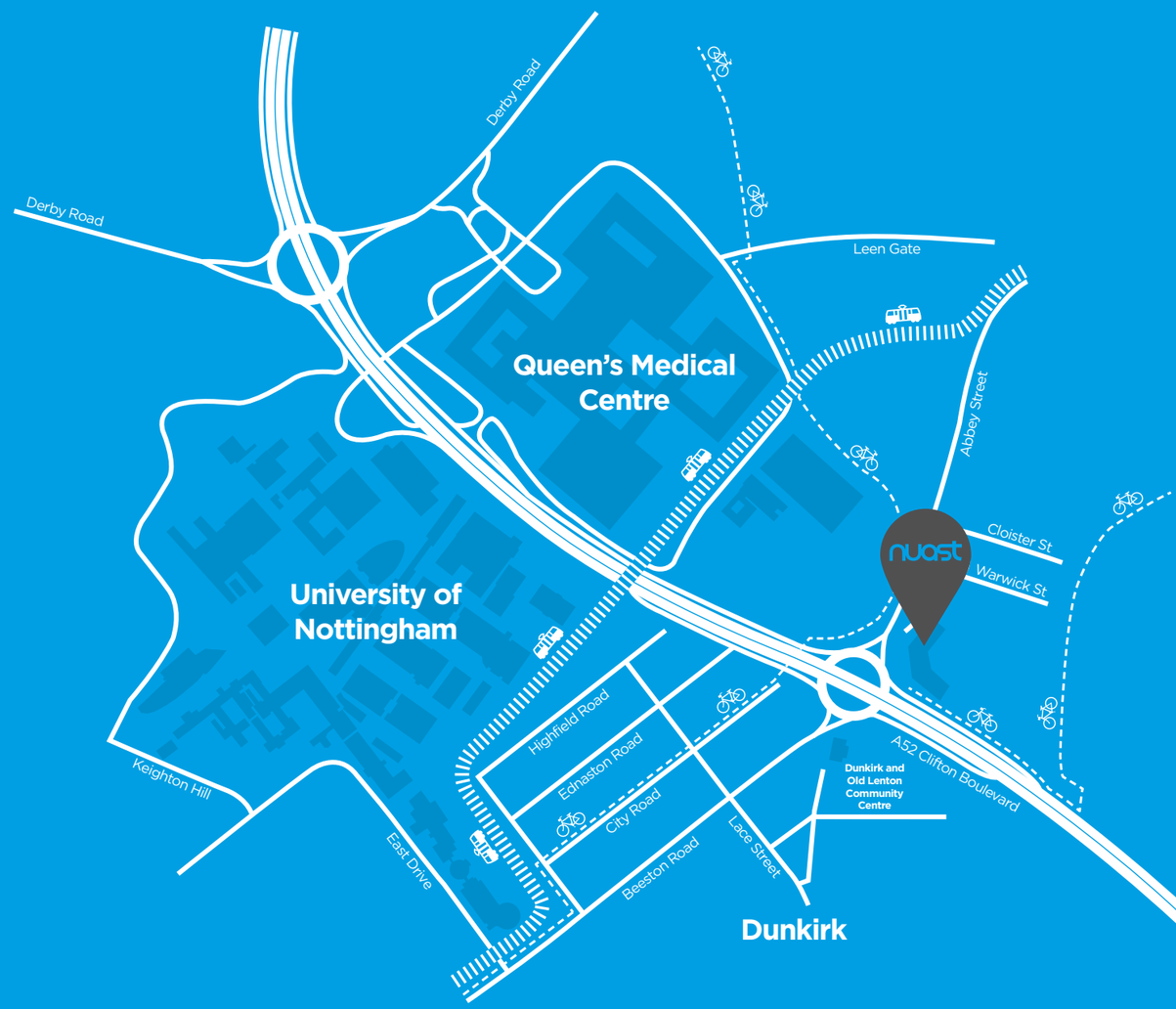
Entry requirements:

We have general entry requirements for entry to study A-Levels at NUAST and some subjects have specific requirements. The general entry requirements are an average grade of 5 across your GCSE subjects.

To study a specialist pathway, you need a 5+ in GCSE Mathematics and a 4+ in GCSE English, plus three other GCSE or equivalent subjects at 5+/Merit+.

Some A-Level subjects have specific entry requirements (see pages 30–33).

In addition to this, we cannot accept any student who achieves below a grade 4 in Mathematics or English (both English GCSEs) under any circumstances.



Where to find us

There is no parking at NUAST. We therefore advise visitors to use the free parking at the Dunkirk and Old Lenton Community Centre (available by prior arrangement for NUAST events) or the pay-and-display parking available at the Queen's Medical Centre (QMC).

Disabled parking is available at the front of the NUAST building.

The 34 Orange Line bus service stops at Lace Street in Dunkirk every few minutes during the day, which is only a two-minute walk from NUAST. The 34, 35 and 36 Orange Line bus services stop at the QMC bus stop on Derby Road, which is only a five-minute walk from NUAST.

Also, the Barton Skylink bus service stops at Abbey Street every 20 minutes during the day.

NET trams also stop at the QMC tram stop and Gregory Street which are both located close to NUAST.

A more detailed map of parking alternatives, public transport and cycle access to NUAST is available on request.

Tomorrow's Scientists and Engineers

MADE IN NUAST

nuast

Nottingham University Academy of Science and Technology

93 Abbey Street
Nottingham
NG7 2PL

0115 859 2040
enquiries@nuast.org
www.nuast.org

Principal: **Robert White** BEd (Hons), PGDE
Executive Principal: **David Hooker** BSc (Hons), PGCE

Ofsted Outstanding Provider

nova Education Trust

In collaboration with University of Nottingham UK | CHINA | MALAYSIA