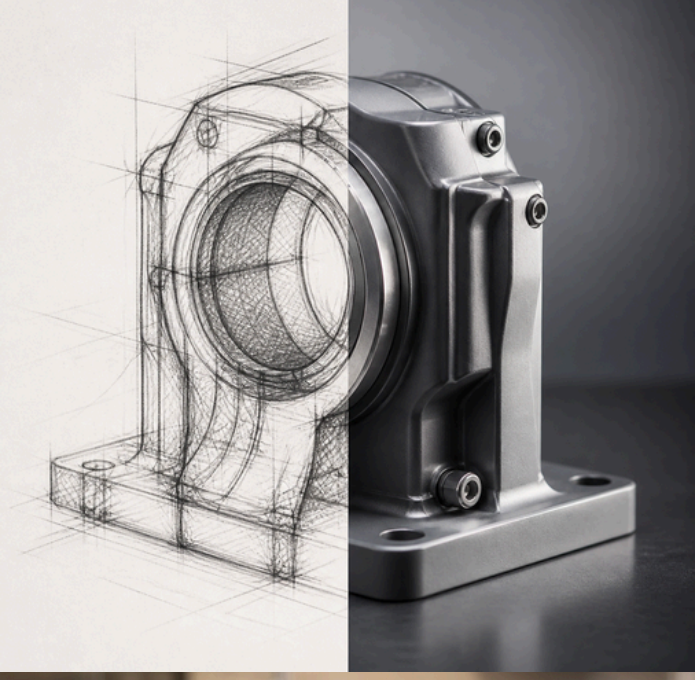
RGS
NEWCASTLE

INTRODUCTION TO

ENGINEERING, DESIGN & TECHNOLOGY

at RGS









Engineering, Design & Technology at RGS combines creativity, engineering and digital innovation, enabling students to transform ideas into real-world solutions.

From Year 7 onwards, students develop practical skills in design, engineering, electronics and manufacturing through a wide range of hands-on projects. Using industry-standard software, modern manufacturing technologies and professional design processes, students learn how products are imagined, developed, tested and brought to life.

Whether designing electronic systems, creating 3D-printed prototypes or developing innovative products for real users, students are encouraged to think creatively, solve problems and embrace new technologies.



YEAR 7 AND YEAR 8

Students begin by developing core skills in designing, making and problem solving through a wide variety of practical projects.

They learn sketching, technical drawing and CAD modelling alongside workshop and manufacturing skills. Projects such as buzz boxes, desk tidies, candle holders, irrigation systems and 3D-printed products introduce students to the full design process, from concept generation through to manufacture and evaluation.

Along the way, students are introduced to electronics, programming, CAD/CAM technologies and modern manufacturing techniques, building confidence in both practical and digital design skills.

YEAR 9 TO YEAR 11

As students progress, they can explore pathways in Product Design and Design Engineering.

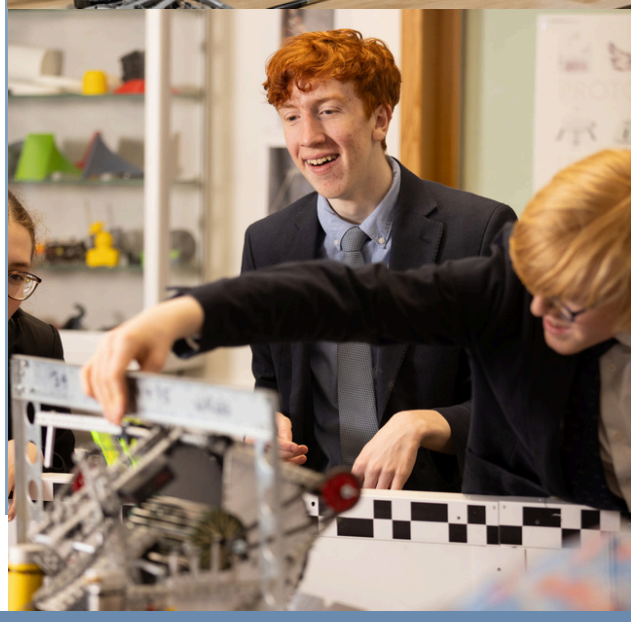
Students undertake increasingly sophisticated projects including electronic toys, creative lighting systems, printed circuit boards (PCBs), robotics and product design projects. They learn to use industry-standard software such as Fusion 360, create CAD models, manufacture prototypes and apply engineering principles to solve real-world problems.

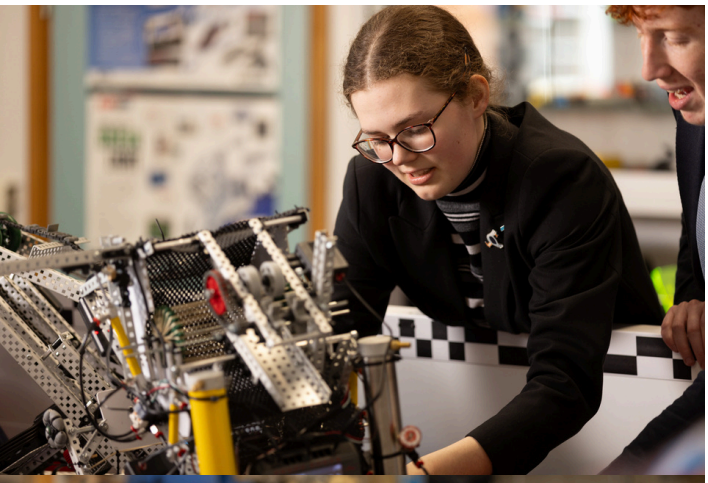
Throughout GCSE study, students work through professional design processes, balancing creativity, technical knowledge and practical application.



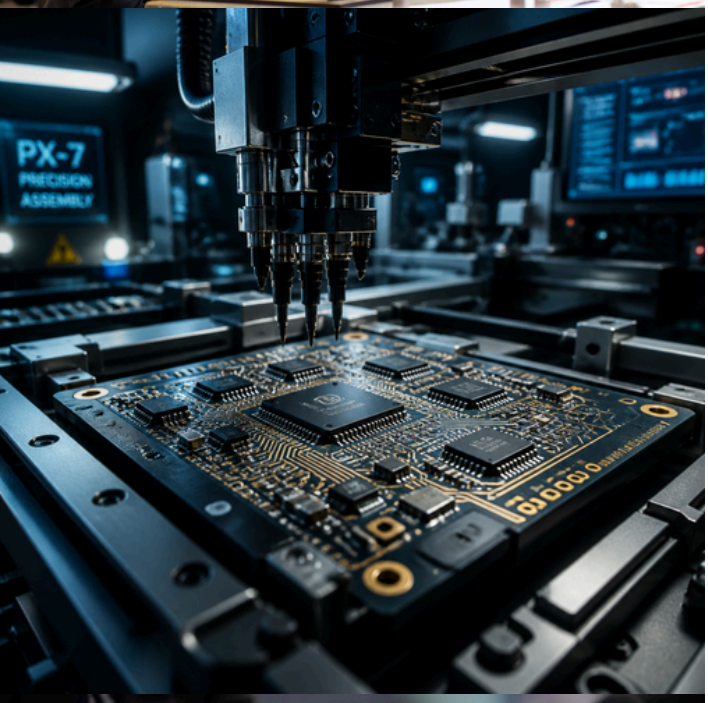














YEAR 12 & YEAR 13

In the Sixth Form, students develop advanced skills in engineering, product design and innovation.

Students combine advanced design theory with practical engineering, digital modelling and modern manufacturing techniques. Topics include materials technology, sustainability, mechanical systems, electronics, automation, computer-aided engineering, design optimisation and advanced manufacturing processes.

A significant element of the course is the independent design project, where students identify a genuine problem, work with stakeholders, develop concepts, create prototypes and evaluate solutions through an iterative design process.

Students leave with an excellent foundation for higher education and careers in engineering, product design, architecture, manufacturing and technology.



FROM IDEA TO REALITY

At the heart of EDT is the design process.

Students learn how to:

- Identify problems and opportunities
- Research users and stakeholders
- Generate and develop ideas
- Create CAD models and prototypes
- Manufacture products using modern technologies
- Test, evaluate and improve their solutions

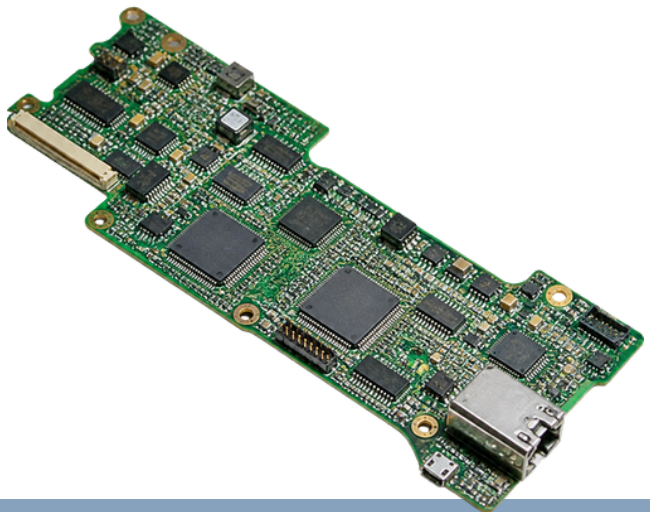
From a Year 7 buzz box to a Sixth Form engineering project, students follow a process used by professional designers and engineers every day. Through designing, making and refining, they learn how to transform creative ideas into real-world outcomes.





















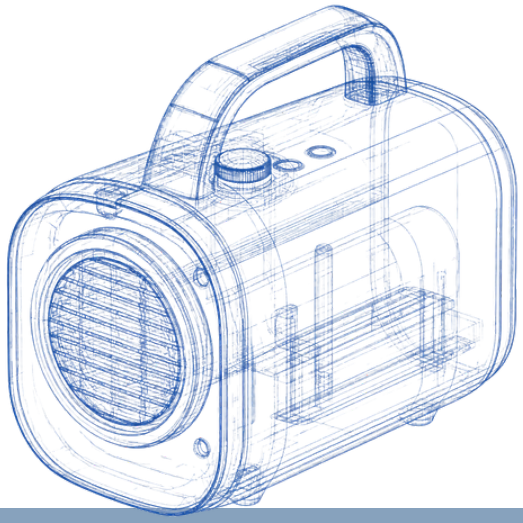
SKILLS FOR THE FUTURE

Engineering, Design & Technology develops a wide range of highly transferable skills that are valued by universities and employers alike.

Students learn to:

- Solve complex problems creatively
- Design and communicate ideas effectively
- Use industry-standard digital design tools
- Manage projects independently
- Analyse and evaluate solutions
- Work collaboratively
- Present and justify decisions
- Manufacture products accurately and safely

The subject provides excellent preparation for careers in engineering, architecture, product design, manufacturing, robotics, sustainable design, industrial design and many other growing sectors.



ENGINEERING AND DESIGN BEYOND THE CLASSROOM

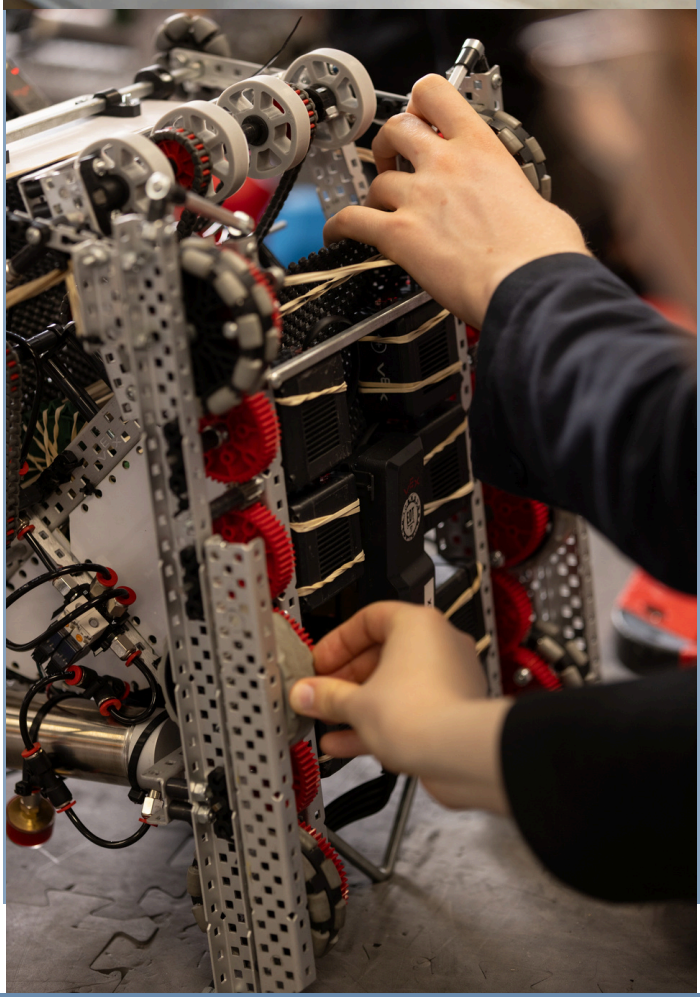
Engineering, Design & Technology extends far beyond the workshop.

Students have opportunities to participate in VEX Robotics competitions, engineering challenges, CAD projects, design exhibitions and industry-focused activities. The department's unique Factory Friday programme provides insight into modern manufacturing processes, robotics and industrial production systems, helping students connect classroom learning with real-world engineering.

Students also have opportunities to engage with visiting professionals, explore cutting-edge technologies and showcase their work through exhibitions and presentations.









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Engineering, Design & Technology at RGS empowers students to think creatively, solve problems and bring ideas to life.

From their first design project in Year 7 to independent engineering and product design projects in the Sixth Form, students develop the confidence, technical expertise and innovation mindset needed to succeed in an increasingly technological world.

Through a combination of creativity, engineering and practical problem-solving, EDT at RGS prepares students for the opportunities and challenges of the future.

For further information about Engineering, Design & Technology at RGS, please contact Mr P Warne, Head of Department via p.warne@rgs.newcastle.sch.uk

