

Engineering Pathways at Scarborough UTC

As a department, we will develop the practical and creative expertise needed for our students to be successful in the engineered world, including the development and application of technical skills and project-based learning, while fostering student curiosity, problem solving skills, enquiry and analysis. This is achieved through working alongside our industry partners on projects, technical masterclasses across different curricular pathways and extracurricular activities.

Our learning pathways provide students with access to state-of-the-art equipment, professional qualifications, and crucially, practical experience with employers.

Year 10/11

Course / Qualification	Subject	Activity
Employer Excellence passport	Hand fabrication Manual machine operation Computer Aided Design Computer Aided Manufacture	Employer based practical projects with clear links to qualifications, required skills and additional employer masterclasses such as the Royal Navy
OCR Cambridge Nationals – Manufacture	R109 Materials, processes and production R110 Planning for manufacture R111 Computer aided manufacturing R112 QC of engineered products	Manual machining techniques – Plaxton. CNC machining of Plaxton component. Investigating quality control techniques and lean manufacture.
OCR Cambridge Nationals – Design	R105 Design briefs and specifications R106 Product analysis and research R107 Developing engineering designs R108 3D design realisation	McCain pump project. Robotic vacuum project with CAD. 3D modelling techniques and CAM utilisation.
OCR Cambridge Nationals – Systems	R113 Electronic principles R114 Simulate, construct & test circuits R115 Applications of computers R116 Process control systems	Design, manufacture and test electronic circuits. Festo automation and control system. Design and program complex control circuit systems for real world applications.
Enrichment	Vex robotics	Design, manufacture, programme and test robots to solve complex problems, challenges and mazes
Enrichment	Greenpower	Design, build and race an electric powered car, development of STEM understanding and application

Enrichment	F1 in Schools	Design, manufacture, test and race scale F1 cars Advanced CAD CAM, CFD, FEA, enterprise, verbal presentations and project management
Enrichment	Engineering club	MIG and Oxy-acetylene welding, forging and brazing

Year 12/13

Course / Qualification	Subject	Activity
OCR Cambridge Technicals – Engineering; electrical and mechanical	Maths and Science for Engineering Principles of mechanical and electrical Electronic and electrical design Circuit simulation and manufacture Mechanical design Computer aided design Materials Science Mechanical operations Automation, control and robotics Computer Aided Manufacture Lean and quality Inspection and testing	Circuit design and manufacture Circuit programming Deep Sea Electronics design project CAD masterclass from Unison Materials testing – real world and simulated labs Workshop manufacture of engineering components Robotic control simulation, programming and operation York Minster Electrical, Mechanical, Hydraulic and Pneumatics project Rosti Automotive project McCain systems - PLC programming CNC machine programming and operation
Product Design	Extended research, design and prototype project	Real world problem solving to develop a range of creative solutions including mathematical thinking. Use of modelling and practical skills to develop a prototype to a high standard including CADCAM
Enrichment	Royal Navy challenge	Complex real world problem solving through design and manufacturing of integrated systems
Enrichment	F1 in Schools	Design, manufacture, test and race scale F1 cars Advanced CAD CAM, CFD, FEA, enterprise, verbal presentations and project management
Enrichment	Engineering club	Workshop utilisation, milling, turning, welding, forging, fabrication and CNC

technical excellence, employable graduates

Scarborough UTC applications are open for September 2020 – apply online at scarboroughutc.co.uk/apply