The HENRY BEAUFORT School

At The Henry Beaufort School, there are no limitations to success.

GCSE Engineering

Year 9, 10 & 11 Learning Journey

Y9

Careers

Slot Together Model

Drawing skills: 2D sketching, oblique, isometric
Modelling: 2D CAD, Cardboard, MDF
CAD/CAM: Techsoft, Laser Cutting

Casting & Moulding: Injection Moulding

Polymers

Composites

Energy Production Methods

Material Properties

Smart Materials

Structural Systems
Forces, loads, structures

Modelling & calculating
Stress, strain, young's modulus

Material Removal:
Cutting, drilling

Shaping:
Bending, folding

Metal Animal

2D drawing skills: orthographic projection
3D drawing skills: oblique, isometric
Modelling: 3D CAD, Cardboard
CAD/CAM: Techsoft, SolidWorks

Heat & Chemical Treatment
Painting, dip coating, electroplating, galvanising, polishing.

Metals & Alloys

Scalextric 4 Schools

2D drawing skills: orthographic projection
3D drawing skills: oblique, isometric
Modelling: 3D CAD, foam
CAD: SolidWorks

Joining & Assembly
Soldering, brazing, welding

Casting & Moulding:
Die casting, sand casting

Y10

Engineered lifespans

Maintenance

Electronic Systems
Inputs, outputs, PIC, Logic, timers, counters

Modelling & calculating
Ohms Law

Mechanical Systems
Linkages, gears, cams, pulleys

Modelling & calculating
Gear ratios, mechanical advantage

Pneumatic Systems
Pneumatics, hydraulics

Aerodynamics
Lift, drag, thrust

Crazy Golf Hole

2D drawing skills: orthographic projection
3D drawing skills: oblique, isometric
Modelling: 3D CAD, foam
CAD: SolidWorks

Impact of Modern Technologies

Skills Stick

Engineering manufacturing processes:
Turning, milling, riveting, tapping and dieing

NEA Begins

Y11

Problem Analysis

Brief, research, specification

Problem Solving

Design Ideas

Modelling

Simulations: CAD, circuits, programming, mechanical

CAD Drawings

2D & 3D, exploded, orthographic projections

Production Planning

Production plan, jigs, CNC

Engineered Product

Selection and safe uses of appropriate materials, parts, components, tools and equipment required to make a product, quality control

FE

Revision and Exam Techniques

Testing & Evaluation

Physical Testing, Tolerances

Systems Technology

Flowcharts, Block Diagrams