

Engineering

BTEC First Diploma in Engineering. Level 2

Possible achievement:

Yr 10 &11: BTEC First Diploma in Engineering (This is Equivalent to four GCSE's grades A* - C) or NVQ Level 2

Study Programme (each topic covered is 30 - 60 hrs of study time over the period of two years)

1. Working Practices in Engineering. You will investigate the importance of H&S and the responsibility of individuals for themselves and others in the work place. You will identify the different types of risks encountered and describe good practice for a safe working environment, whilst making a selected artifact in the workshop.
2. Using and Interpreting Engineering Information. You will be able to explain and produce projects from given information including charts manuals and drawings, with the ability to describe dimensions, tolerances and surface finish.
3. Applied Electrical and Mechanical Science for Technicians. You will investigate forces on structures, Ohm's Law, electrical current, potential difference and resistance in circuits. Use mathematics and graphical methods to solve engineering problems such as velocity, work power and acceleration.
4. Mathematics for Engineering Technicians. You will solve problems using trigonometry and transposition of formulae, work out areas, volumes and produce graphical data in the form of graphs.
5. Selecting Engineering Materials. You will be able to explain and select different materials for specific projects from given information including surface finish, material properties such as toughness, ductility, tensile strength and durability. Then produce given projects from the information researched.
6. Using Computer Aided Drawing Techniques in Engineering. Be able to manipulate given drawings on different CAD software packages, to produce accurate working drawings that can be used in the production of artifacts.
7. Selecting and Using Secondary Machining Techniques to Remove Material. Identify and select appropriate tools and machines commonly used for the removal of material in the engineering workshop. Prepare work areas ready for the manufacture of given projects ensuring all H&S issues are adhered to.

8. Application of Welding Processes. You will investigate different types of welding procedure and then construct simple lap, 'T' and corner joints using MIG, ARC and Oxy-Acetylene joining techniques.

9. Fabrication Techniques and Sheet Metal Work. You will use the knowledge gained from your welding assignment to fabricate I beams to construct simple steel frame buildings, you will also use different types of material for different purposes or situations. You will be able to form temporary and permanent joints on specified jobs.