

Design and Technology (Product Design)



Features of the Course:

- Sketching, modelling and design development skills
- Sustainable design and Life Cycle Assessment Processes and Techniques of specialist tools.
- CAD/CAM skills including Laser Cutting and 3D printing
- Health and safety issues
- Manufacturing systems including quality control, quality assurance and TQM
- A knowledge and understanding of materials, industrial processes (wood, metal, polymers, composites, textiles, papers and boards)
- Ergonomics, anthropometrics and user centred design
- Design influences and history
- The design process – product analysis and near centred design, market research, project planning, evaluating and testing

Units:

Component 1: Principles of Design and Technology

- Topic 1: Materials
- Topic 2: Performance characteristics of materials
- Topic 3: Processes, techniques and specialist tools
- Topic 4: Digital technologies
- Topic 5: Factors influencing the development of products
- Topic 6: Effects of technological developments
- Topic 7: Safe working practices, potential hazards and risk assessment
- Topic 8: Features of manufacturing industries
- Topic 9: Designing for maintenance and the cleaner environment
- Topic 10: Current legislation
- Topic 11: Information handling, modelling and forward planning
- Topic 12: Further processes and techniques

The exam paper includes calculations, short-open and open-response questions, as well as extended writing questions.

Component 2: Independent Design and Make Project

- Students individually and/or in consultation with a client/end user identify a problem and design context.
- Students will develop a range of potential solutions which include the use of computer aided design and evidence of modelling.
- Students will be expected to make decisions about the designing and development of the prototype in conjunction with the opinions of the client/end user.
- Students will realise one potential solution through practical making activities with evidence of project management and plan for production.
- Students will incorporate issues related to sustainability and the impact their prototype may have on the environment.

Methods of Assessment:

Component 1: 50% of A Level. Written examination.

Component 2: 50% of A Level. Coursework that is assessed by your teachers and moderated by the exam board.