



Sir John Cass Red Coat School Programme of Study – Key Stage 5
Subject: Product Design

Year 12	Year 13
<p><u>Topics Covered/ Areas of Focus:</u></p> <p>Theme: Major project – Design and make project of own choice and theory exam paper</p>	<p><u>Topics Covered/ Areas of Focus:</u></p> <p>Theme: Major project - Design and make task set by exam board and theory exam paper.</p>
<p><u>Skills Development & Expected Progress:</u></p> <ul style="list-style-type: none"> • Students develop knowledge of the principles of designing. • Students develop skills in research methods. • Students develop understanding of quantitative and qualitative testing. • Students develop knowledge and understanding of ergonomics and anthropometrics. • Students develop knowledge of different computer system for designing. • Students develop knowledge and understanding of processes involved in the design and production of a range of manufactured products. • Students develop knowledge of form and function of different products. • Students develop knowledge of patenting and International standards. • Students develop knowledge of materials, components and their potential application. • Students develop knowledge of the choice of materials for specific service requirements • Students develop knowledge of working characteristics of materials: physical, chemical and composite • Students develop knowledge of methods of creating materials with specific properties of modern material technology • Students develop knowledge of the main features of manufacturing industry. • Students develop knowledge stages of production. • Students develop knowledge of management systems for production, quality assurance, organisation of equipment and people. 	<p><u>Skills Development & Expected Progress:</u></p> <ul style="list-style-type: none"> • Students develop understanding of designing and making quality manufactured products, planning production with consideration of the use of time and resources, performance characteristics of different materials including ‘Smart’ and modern, tools and equipment, including new technologies used to make quality manufactured products, processes and techniques used to make quality manufactured product both decorative and functional, the impact that the use of graphic products has on the environment including the need to consider sustainability and health and safety issues. • Students develop understanding of needs and demands of consumers, technology-push and market-pull, marketing strategies and how market research is conducted. • Students develop knowledge of hand and machine methods of preparing, processing and manipulating materials . • Students develop knowledge of the use of ICT by industry in the design and manufacture of products.

Assessment:

The examination board is WJEC.

60% course work / 40% exam – AS two hour paper / A2 is two and a half hour paper

Students also evaluate their work and progress and respond to feedback.

Individual pieces of work are formatively marked following the school's assessment policy to provide constant feedback and progression.

Students are expected to correct their own work and respond to teacher comments using the school assessment proforma.

Literacy:

Students develop speaking and listening skills.

Students provide oral and written evaluation of their work.

The promotion of independent research and product design allow students to develop ideas in depth. Reading enriches their subject knowledge and technical vocabulary.

Students use the correct technical language. Key terms are taught explicitly.

Numeracy:

Students consistently use Mathematics throughout the programme.

Students use measurements, conversation, percentages, calculating the cost of project including materials cost, graphs, symmetry, proportion, scale, shapes.

ICT:

CAD, CAM, using computers, electronic portfolios

Life in Modern Britain:

Health and safety regulations in UK

Rule of Law

BSI

Sustainability

SMSC:

Students understand responsibility towards others. Collaborative and cooperative work allows students to develop respect for the abilities of each other. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness and understanding and they learn to appreciate the value of differences and similarities.

Meeting the needs of individual students & Additional Support:

Differentiated learning, scaffolding/targeted questioning, one-2-one support, extension tasks, and technician support.

Extra-Curricular Activities & Club:

After school extension classes once a week and Saturday intervention classes.

Independent Study/ Homework:

Students continue with independent work on their major project and also revision for exam and practice exam papers.

Resources for Learning Support and VLE:

PowerPoints presentation, CAD, CAM work.