

Key Stage 3 DT: Curriculum

Year 7

Introduction to DT, working safely, measuring and marking out materials.

1 hour per week

7A 4 rotations (Food, Textiles, Electronics, DT)

7B 5 rotations (Food, Textiles, Electronics, DT x2)

½ hour per week STEM (Developing communication skills, Introduction to 3D CAD, solving problems)

Year 8

Knowledge and skills developed in the different material areas and applied to different contexts.

2 hours per week

8A 4 rotations (Food, Textiles, DT Polymers, DT Metals, DT Mechanisms)

8B 5 rotations (Food, Textiles, DT Polymers, DT Metals, DT Mechanisms)

Year 9

Knowledge and skills from year 8 developed further and applied to more open design contexts requiring an individual response. Preparation for option choices, all students will have covered some of each option area before they make their choices.

2 hours per week

1h (Food and Textiles)

1hr (DT and DEC)

Enrichment Afternoon: An afternoon applying knowledge skills and creativity to design problems. Links to careers and the 'Big Picture'

KS4 Curriculum Plans

OCR GSCE Design and Technology

	Year 10			Year 11		
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term
Content	<p>Cardboard Chairs</p> <ul style="list-style-type: none"> • Product Analysis • Modelling • Testing and Evaluating • Paper and Board <p>Lego</p> <ul style="list-style-type: none"> • 2D and 3D drawing • Scale • CAD • 3D Printing <p>Polymers</p> <ul style="list-style-type: none"> • Properties • Categories • Bioplastic • Production <p>Metals</p> <ul style="list-style-type: none"> • Properties • Categories • Pewter Casting 	<p>Timber</p> <ul style="list-style-type: none"> • Properties • Categories • Pewter Casting • Living hinges • Plywood bending <p>Textiles</p> <ul style="list-style-type: none"> • Properties • Categories • Patterns • Making a pouch <p>Mechanisms</p> <ul style="list-style-type: none"> • Levers • Gears • Mechanical Advantage • Input –Process- Output 	<p>Energy</p> <p>Review of Materials and Properties</p> <ul style="list-style-type: none"> • Paper and Board • Timbers • Polymers • Metals • Textiles <p>Start NEA</p> <ul style="list-style-type: none"> • Exploring Briefs • Client • Product Analysis 	<p>NEA</p> <ul style="list-style-type: none"> • Exploring Ideas • Modelling • Iterative Design • CAD • Exploring Materials • Developing an Ideas 	<p>NEA</p> <ul style="list-style-type: none"> • Planning • Creating working drawings • Manufacturing specification • Making a prototype • Evaluating 	<p>Revision for exam</p>
Assessment	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Design projects will be graded and feedback given</p>	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Design projects will be graded and feedback given</p>	<p>June 1st: Brief for NEA will be released by OCR</p> <p>Y10 Mock exam</p>	<p>NEA (40 hours 50% of grade)</p>	<p>NEA (40 hours 50% of grade)</p>	<p>External Exam 50% of grade</p>

A copy of the specification can be found at: <https://www.ocr.org.uk/qualifications/gcse/design-and-technology-j310-from-2017/>

Level 2 WJEC Designing the Built Environment

Year 10				Year 11		
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term
Content	Introduction Careers Sustainability Architecture in Sheffield Design Project Café in Hillsborough park Scale drawing <ul style="list-style-type: none"> • Floor plans • Elevations • Site Maps BIM Modelling <ul style="list-style-type: none"> • Floor plans • Schedules • Elevations • 3D views 	Unit 1: Planning Potential of Construction projects <ul style="list-style-type: none"> • Planning law • Calculating the cost of a planning application • Listed buildings and consent • Interpreting maps • Utilities • infrastructure • Writing a report Case studies and model assignments	Unit 1: Planning Potential of Construction projects Externally set assignment 6hr examination Unit 2: Scale drawings <ul style="list-style-type: none"> • Site plans • Elevations • Sections 	Unit 2: Drawing Construction Plans Externally set assignment: Totley Scout Hut <ul style="list-style-type: none"> • Exploring Precedents • Site Visit • Designing a the building • Drawing a site map • Drawing elevations • Drawing Floor plans • Calculating spaces • Modelling the building • 3D renderings 	Unit 3: Building Structures and Materials <ul style="list-style-type: none"> • Building Elements • Material properties • Sustainability • Externally set assignment. 	Unit 1: Planning Potential of Construction projects Practice assessments for any students re-sitting Unit 1
Assessment	Homework: Edulink Tests: Vocabulary and terminology Design Project will be graded and feedback given	Homework: Edulink Tests: Vocabulary and terminology Model assessment will be graded and feedback given	May 1 st : Brief for Unit 1 will be released by EDUCAS: 6hr external examination	Unit 2 deadline Christmas holiday Internal Assessment	Unit 3: deadline Easter Holiday Internal Assessment	Re-sit opportunity for Unit 1 6hr external examination

A copy of the specification can be found at: <https://www.eduqas.co.uk/qualifications/designing-the-built-environment/>

	Year 10			Year 11		
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term
Content	<p><u>UNIT 1- Portfolio</u> <u>Introduction:</u> Drawing and observational skills. Using different media. Introduction to Textile techniques. <u>Skills based workshops</u></p> <ul style="list-style-type: none"> • Pencil drawing-tonal • Fineliner- Line drawing • Watercolour & inks • Freehand machining • Silk painting • Batik • Soluble fabric • Acrylic • Pastels • Wire drawings <p>Outcome: study sheets</p> <p><u>V&A Visit:</u> <u>(looking at pattern)</u> Work in sketch books from the gallery. Lino Print using a repeat pattern inspired by images from the V&A and a silk scarf. Outcome: Lino print Making: Silk Scarf/ hat</p>	<p><u>Beatriz Milhazes Print:</u> Research her work create a hand made book.</p> <ul style="list-style-type: none"> • Shapes • Creating textures • Layering print • Block print • Mono print • Poly print • Lino Print • Stencilling • Bubble wrap <p><u>Fashion Illustration:</u> Using different methods, mediums and a variety of designers as inspiration.</p> <ul style="list-style-type: none"> • Seven heads • Templates • Tracing • Free style <p>Look at Elyse Blackshaw</p>	<p><u>Felting:</u> Look at a felting artist and create a small felted image.</p> <p><u>Fabric manipulation:</u> Choose a colour way to work with Testing and sampling</p> <ul style="list-style-type: none"> • Burning • Tyvek and Lutradur • Cutting and slashing • Shibori • Tucks/ decorative tucks • Weaving • Shirring elastic • Gathers • Mola <p>Pick a theme and develop your samples to fit your chosen theme. Collect images of fabric manipulation being used by fashion designers. Mocks: Jess Priest floral work and sublimite, use batik or silk paint a cushion</p>	<p><u>Fabric Manipulation:</u></p> <ul style="list-style-type: none"> • Fashion Illustration and a plan of final making. • Final design samples • Making • Present study sheets <p>Outcome: Minimum of three study sheets and a corset</p> <p>Making: Corset.</p> <p>Mocks: 25th November – 6th December</p> <p>Using mini sketchbook as inspiration and research into a chosen embroidery artist produce a final embroidery.</p>	<p><u>UNIT 2: Externally Set Assignment</u></p> <ul style="list-style-type: none"> • Hand out questions from the exam board. <p><u>Exam Preparation:</u> Personal research and development of ideas using techniques and skills learnt from previous workshops. Personal tutorials to develop ideas.</p> <ul style="list-style-type: none"> • Samples and modelling • All work must be presented and annotated before the exam. • Materials to be prepared and cut out. 	<p>ESA 10 HOURS EXAM 14th April- 24th April</p> <p><u>Portfolio:</u> Work back into all projects to complete unit 1.</p>
Assessment	<p>B&W study sheet Colour Study sheet. Written feedback on A5 assessment sheet.</p> <p>V&A booklet of pattern and final lino prints. Silk Scarf Written feedback on A5 assessment sheet. Homeworks</p> <ul style="list-style-type: none"> • Drawing skills • Hand embroidery • Designer research 	<p>Beatriz Milhazes hand made book and study sheets.</p> <p>Fashion illustration study sheets. Written feedback on A5 assessment sheet.</p> <p>Homeworks</p> <ul style="list-style-type: none"> • Drawing skills • Designer research • Melissa Zexter 	<p>Felting samples and final piece. Written feedback on A5 assessment sheet.</p> <p>Verbal feedback given to help develop individuality of the fabric manipulation project.</p> <p>Sketchbook for homeworks</p> <ul style="list-style-type: none"> • Drawing skills • Designer and artist research 	<p>Final boards and corset.</p> <p>Mock exam piece</p> <p>Hand embroidery extended homework in small sketchbook. Task 1-10</p>	<p>Individual tutorials to assess exam preparation. Individual plans discussed.</p> <p>Hand embroidery extended homework in small sketchbook. Task 1-10</p>	<p>FINAL DEADLINE 5TH May</p> <p>ART EXHIBITION 14th May</p>

GCSE FOOD PREPARATION AND NUTRITION

Year 10				Year 11		
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term
Content	Introduction Eatwell Guide Macronutrients Micronutrient Sources Functions Excess Deficiency Dietary groups Nutritional needs and life stages Energy needs Nutritional analysis and meal planning Cooking of food and heat transfer Food spoilage and contamination. Food safety	Sensory evaluation Functional and chemical properties of food. Protein – denaturation, coagulation, gluten formation, foam formation. Carbohydrate – gelatinisation, caramelisation, mallard – browning, dextrinization Fats and oil-emulsification, plasticity. Raising agents – mechanical, biological and chemical	Food processing and production. Technological developments. Factors affecting food choice Religion and culture, ethical and moral and medical. Food labelling Food provenance British and international cuisines Environmental impact and sustainability	NEA1 Task Analysis Prior knowledge Research techniques Investigation planning Independent investigation Evaluation of results Conclusions High level skill techniques Skills 1-12 NEA2 Analysis Research Selecting dishes	Demonstrating technical skill Recipe1 Recipe2 Recipe3 Recipe4 Selecting dishes for the final menu Time plan Presentation of final dishes Nutritional analysis Sensory testing Costing Final evaluation Revision and different style exam questions (multiple choice, short and long) Nutrition	Revision and different style exam questions (multiple choice, short and long) Healthy eating, diet and health Nutritional needs and life stages Food safety Functional and chemical properties of ingredients and food. Food processing (wheat) Factors affecting food choice. Food provenance.
Assessment	Homework: Edulink Tests: Vocabulary and terminology End of topic multiple choice and longer answer exam q's.	Homework: Edulink Tests: Vocabulary and terminology End of topic multiple choice and longer answer exam q's.	Homework: Edulink Tests: Vocabulary and terminology End of topic multiple choice and longer answer exam q's. Mock exam preparation and Mock exam,	Homework: Edulink NEA1 internal assessment Multiple choice and longer answer exam q's. Mock exam preparation and Mock exam,	Homework: Edulink NEA 2 Internal Assessment Multiple choice and longer answer exam q's. Mock exam preparation and Mock exam,	Exam questions with individual feedback. 1.45hr external examination

A copy of the specification can be found at: <https://www.aqa.org.uk/subjects/food/gcse/food-preparation-and-nutrition-8585>

KS5 Curriculum

We follow the Design Engineer Construct L3 Diploma. The course is linked to all areas of the Built Environment and provides strong links to industry. Students go on to study architecture, planning, Civil Engineering, Structural Engineering, property and estates management, interior architecture and Architectural technology. The course also offers work experience and enrichment opportunities.

Course Outline

Level 3 Designing, Engineering and Constructing a Sustainable Built Environment: Course Content

Unit 1: Defining a Sustainable Construction Project 10 credits (60 GLH)	Unit 2: Developing a Sustainable Construction Project 10 credits (60 GLH)	Unit 3: Investigate design, structural and services aspects of a sustainable construction project 10 credits (60 GLH)	Unit 4: Deliver design, structural and services aspects of a sustainable construction project 10 credits (60 GLH)	Unit 5: Lifecycle and Financial Planning for a Sustainable Construction Project 10 credits (60 GLH)	Unit 6: Evaluating and Documenting a Sustainable Construction Project 10 credits (60 GLH)
1. Research and convey the project remit.	1. Prepare a design brief and take steps to appoint an effective design team.	1. Gather and analyse information to develop the design.	1. Use building information modelling techniques to develop the design.	1. Use building information modelling techniques to support the operational management of a building.	1. Make objective comparisons between construction methods.
2. Set standards for sustainability in a construction project.	2. Use building information modelling techniques for concept design.	2. Gather and analyse information to develop the structural elements.	2. Use building information modelling techniques to develop structural elements of a building project.	2. Understand cost analysis and financial control.	2. Communicate outcomes from professional perspectives.
3. Define site information required.	3. Prepare information and resources needed to support a planning application.	3. Gather and analyse information to develop the building services Elements.	3. Use building information modelling techniques to develop building services elements of a building Project.	3. Produce a budget for a complex building project.	3. Make a presentation of a summary report to a critical audience.

Level 3 TQUK DEC

	Year 12			Year 13		
	Autumn Term	Spring Term	Summer Term	Autumn Term	Spring Term	Summer Term
Content	<p>Introduction Careers Off site Manufacture The Housing Crisis Group Design Project</p> <ul style="list-style-type: none"> Affordable housing at Kelham Island Modelling and scale <p>BIM Modelling</p> <ul style="list-style-type: none"> Floor plans Schedules Elevations 3D views <p>Unit 1</p> <ul style="list-style-type: none"> Identifying a project using LDP BREEAM Site Surveys Concept Designs <p>Unit 2</p> <ul style="list-style-type: none"> Writing a design brief BIM Concept Designs 	<p>Unit 2:</p> <ul style="list-style-type: none"> Planning law Legislation Planning Permission Presenting a Proposal <p>Unit 3: Architecture</p> <ul style="list-style-type: none"> Exploring precedents Exploring materials Developing a proposal 	<p>Unit 3: Structures</p> <ul style="list-style-type: none"> Exploring precedents Exploring materials Understanding forces Researching loading <p>Unit 4: Architecture</p> <ul style="list-style-type: none"> Creating an architectural model Creating sheets and schedules Feedback and improvements <p>Visit to SHU:</p> <ul style="list-style-type: none"> degree shows 	<p>Unit 4: Structures</p> <ul style="list-style-type: none"> Creating a structural model Calculating structural elements Clash detection Feedback and improvements <p>Building Services</p> <ul style="list-style-type: none"> Researching lighting, heating and ventilation requirements Exploring and selecting appropriate technologies Modelling lighting <p>Unit 5:</p> <ul style="list-style-type: none"> BIM for FM Quantity surveying Costt modelling <p>CV Workshop and applications fro apprenticeships</p>	<p>Exam preparation</p> <ul style="list-style-type: none"> Past papers KO Units 1-5 <p>Unit 6</p> <ul style="list-style-type: none"> Creating digital and physical models Presenting a proposal to industry Walkthroughs AR and VR BIM 360 <p>Visit to Laing O Rourke</p> <ul style="list-style-type: none"> Modern methods of manufacture 	<p>Presentations to Industry</p> <p>Unit 6: Evaluations</p> <ul style="list-style-type: none"> Feedback from industry Improvements Evaluation of Learning <p>Exam preparation</p>
Assessment	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Design Project will be graded and feedback given</p>	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Units 1 and 2 will be assessed and feedback given</p> <p>Mock exam: Feb</p>	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Unit 3 will be assessed and feedback given</p> <p>Mock exam:</p>	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Units 4 and 5 will be assessed and feedback given</p>	<p>Homework: Edulink</p> <p>Tests: Vocabulary and terminology</p> <p>Units 1,2,3,4 and 5 will be assessed and feedback given</p> <p>Exam: Jan 20th</p>	<p>Re-sit opportunity for the exam</p> <p>Presentations to Industry</p>

A copy of the specification can be found at: <https://www.tquk.org/index.php/what-we-do/design-engineer-construct>