

Year 10 Design & Technology

Curriculum Manager: Mr Damant **KS4 Lead:** Mrs Ahmed

Teaching Staff: Mrs Ahmed, Miss Smith & Miss Andrew

Qualification: GCSE

Curriculum Rationale: GCSE Design and Technology offers a broad and flexible approach to the subject. It is a theory and practical subject which requires the application of knowledge and an understanding of materials and material processing when developing ideas, producing products and evaluating them. Learners are encouraged in their design portfolio to use a wide range of design techniques including freehand drawings, isometric and orthographic drawing, as well as Computer Aided Design and Computer Aided Manufacture techniques.

Year 10 Term 1 - Course Content:

Specialist Technical Principles

- Selection of materials and properties
- Using and working with materials
- Sources & origins
- Stock forms, types and sizes - Scales of production
- Specialist techniques and processes
- Surface treatments and finishes
- Develop design skills

Year 10 Term 2 - Course Content:

Core Technical Principles

- Materials and their working properties.
- New and emerging technologies
- Energy generation and storage
- Developments in new materials
- Systems approach to designing
- Mechanical devices
- *Practical task to enhance theoretical knowledge

Year 10 Term 3 - Course Content:

Designing & Making Principles

- NEA skills development. Exploration of contextual challenges.
- Investigation, primary and secondary data, user needs, product analysis
- Environmental, social and economic challenge
- The work of others, design strategies
- Communication of design ideas.
- Prototype development
- *Begin GCSE NEA

Assessments:

Course components.

Component 1: Written Examination: 2 hours, 15% of examination with assess mathematical and scientific knowledge, 100 marks, 50% of GCSE.

Component 2: Non-Exam Assessment (NEA): Design portfolio and manufacture of a prototype, 35 hours, 100 marks, 50% of GCSE.

Homework and Revision Guidance:

- One homework task is assigned per week, each task will take 20/30 minutes to complete, homework can be completed via virtual platforms (Google Classroom and Seneca Learning).
- Pupils will have one single and one double lesson per week. Activities based on theoretical knowledge.
- Remote learning is completed via Google Classroom; all teaching resources and homework's are available for reference and completion each week. Pupils are expected to be proactive and work independently, especially whilst completing the NEA.
- There are opportunities for after school and half term sessions.

Learning and Career Pathways:

- Product/ interior Designer
- Fashion Designer/ Dressmaker
- Graphic Designer
- Architect
- Engineer/ Surveyor
- Apprenticeships (joinery, plumbing, electrician)
- Further Education (A levels)
- Higher Education (BDes, BSc Degree courses)

Year 10 Construction and the Built Environment

Curriculum Manager: Mr Damant

KS4 Lead: Mr Gibson

Teaching Staff: Mr Gibson & Mrs Smith

Qualification: WJEC Level 1/2 Vocational Award in Constructing the Built Environment

Curriculum Rationale:

- Provides learners with an introduction to the construction industry.
- Develops learners' practical abilities for three selected skills.
- Helps learners understand the relationship between the construction process, the planning of construction projects and construction site safety.

Year 11 Term 1 - Course Content:

Continue with UNIT 2 practical work – Carpentry & Joinery, dry lining and Plastering & Decorating skills undertaken and report writing of all practical tasks

Revisiting UNIT 1 & 3 revision in preparation to re-sit both exams again in Year 11

Year 11 Term 2 - Course Content:

Continue with UNIT 2 practical work – Carpentry & Joinery, dry lining and Plastering & Decorating skills undertaken and report writing of all practical tasks

Revisiting UNIT 1 & 3 revision in preparation to re-sit both exams again in Year 11

Year 11 Term 3 - Course Content:

Revisiting UNIT 1 & 3 revision in preparation to re-sit both exams again in Year 11

Assessments:

Unit 1 25% External assessment: Safety and security in construction.

Unit 2 50% Internal assessment: Developing construction projects.

Unit 3 25% External assessment: Planning construction projects.

Homework and Revision Guidance: (include an overview of homework/out of lesson expectations, where and how pupils can access Remote Learning Provision, when and where onsite revision will take place etc.)

- One homework task is assigned per week, each task will take 30 minutes to complete, homework can be completed via the virtual platform (Google Classroom or SMHW)
- Remote learning is completed via Google Classroom or SMHW, teaching resources are available for reference.

Learning and Career Pathways:

What could it lead to in Sixth Form?

Level 3 National Diploma in Construction and the Built Environment

What careers/University courses would this subject help me to enter?

Possible University Courses

Numerous degrees within the construction and engineering sectors as well as a firm range of apprenticeships from a technical to a professional level.

Possible Careers

Project Manager, Quantity Surveyor, Architect, Building Systems Manager, Electrical Engineer, Design Engineer, Structural Engineer, Planner, Architectural Technologist, Civil Engineer, Building Surveyor plus many more trades and professions such as Brick Worker, Joiner etc.

Year 10 Engineering Design

Curriculum Manager: Mr Damant

KS4 Lead: Mr Peet

Teaching Staff: Mr Peet & Miss Andrew

Qualification:

Cambridge National Level 1/2 Award/Certificate

Curriculum Rationale:

- Developing problem solving in order to contribute to the development of new products and systems.
- The Study of processes involved in designing new engineered products.
- Developing practical communication and presentation skills including drawing, computer modelling and model making.
- Developing 3d realisation skills including small scale and industrial manufacturing process.

Year 10 Term 1 - Course Content:

Unit R108: Practical and skills development in preparation for coursework
Unit R105: Exam theory knowledge taught

Year 10 Term 2 - Course Content:

Unit R108: Coursework written and practical tasks undertaken
Unit R105: Exam theory revised and exam style questions worked through

Year 10 Term 3 - Course Content:

Unit R108: moderated and submitted to exam board Unit
R106: Coursework written and practical tasks undertaken
Unit R105: Exam questions practiced and pupils take exam in June series.

Assessments:

Unit R105; 25%: Design briefs, design specifications and user requirements – Examined unit (two attempts allowed)
Unit R106; 25%: Product analysis and research – Coursework unit
Unit R107; 25%: Developing and presenting engineering designs – Coursework unit
Unit R108; 25%: 3D design realisation – Coursework unit

Homework and Revision Guidance:

(include an overview of homework/out of lesson expectations, where and how pupils can access Remote Learning Provision, when and where onsite revision will take place etc.)

- One homework task is assigned per week, each task taking 30 minutes to complete, homework can be completed via the virtual platform (Google Classroom or SMHW)
- Remote learning is completed via Google Classroom and administered through SMHW all teaching resources are integrated into classroom for reference and all tasks are worked on live in google classroom
- Revision utilises OCR exam builder and exam revision booklets developed in house

Learning and Career Pathways:

What could it lead to in Sixth Form?

Most progress onto external colleges to pursue BTEC Level 3 Foundation Diploma in Engineering / BTEC Level 3 Diploma in Mechanical Engineering / BTEC Level 3 National Diploma in Electrical Engineering / BTEC Level 3 National Diploma in Engineering or Cambridge Technicals level 3.

What careers/University courses would this subject help me to enter?

Possible University Courses

A large range of degree courses spanning mechanical, computer and scientific disciplines including (but not limited to); General engineering / Civil engineering / Mechanical engineering / Aerospace / Naval architecture Electronic and electrical engineering / Production and manufacturing / Chemical, process, and energy / Metallurgy / Ceramics and glass / Polymers and textiles / Maritime technology / Biotechnology Possible Careers Chemical engineer / Electrical engineer / Mechanical engineer / Civil engineer / Software engineer / Environmental engineer in a broad spectrum of industries such as aerospace / automotive / defence/ food & drink / oil & gas / manufacturing