DESIGN AND TECHNOLOGY (RM) YEAR 12

AUTUMN 1

Theory Topic - Materials and components Students study a range of materials - wood, metals, polymers, composite materials, textiles, paper and card, modern materials and smart materials. Students should be able to identify the materials a product is made from, why that has been used, how the product has been manufactured and use notes and diagrams to describe the process. Students should also be able to compare 2 similar products and analyse the advantages and disadvantages of each.	**Transition module** Students complete a mini version of the major NEA which starts in January. Looking at mark schemes and past examples of high quality NEAs. Google classroom is set so each student has their own presentation. Focus is re-designing tools and kitchen utensils.	**September and October** Investigating the context, creating a design brief and analysing primary user needs and stakeholder requirements. Primary and secondary research.	Prior Learning At GCSE students will have covered one (or maybe more) material to GCSE standard, this needs reinforcing and then building on – especially in terms of manufacturing processes.

AUTUMN 2

Theory Topic - Materials and components Students study a range of materials - wood, metals, polymers, composite materials, textiles, paper and card, modern materials and smart materials. Students should be able to identify the materials a product is made from, why that has been used, how the product has been manufactured and use notes and diagrams to describe the process. Students should also be able to compare 2 similar products and analyse the advantages and disadvantages of each.	**Transition module** Students complete a mini version of the major NEA which starts in January. Looking at mark schemes and past examples of high quality NEAs. Google classroom is set so each student has their own presentation. Focus is re-designing tools and kitchen utensils.	**November and December** Creating design ideas, developing card models. Using CAD and CAM to design component parts. Developing a final design solution.	Prior Learning At GCSE students have been guided by OCR with their context choices. The transition allows students to select their chosen context and gives students not familiar with slides and CAD the chance to catch up.

SPRING 1

Theory Topic - Sustainability Students complete a life cycle assessment on a range of products, identifying areas where the product is less sustainable and how this could be mitigated.	**Theory Topic – Marketing** Students study marketing, both traditional and modern. They look at case studies of how specific products are marketed and all elements of the marketing mix.	**January and February** Students follow a similar pathway to the transition module however in far more depth and rigor. Investigate 3 contexts & develop a brief.	Prior Learning Sustainability is an area well covered in GCSE, this is studied in greater depth and more detailed answers are required with examples at A level. Marketing will be new to students who did not do Business studies at GCSE.

SPRING 2

Theory Topic - Sustainability Students complete a life cycle assessment on a range of products, identifying areas where the product is less sustainable and how this could be mitigated.	**Theory Topic – Marketing** Students study marketing, both traditional and modern. They look at case studies of how specific products are marketed and all elements of the marketing mix.	**February and March** Investigate user and stakeholder needs. Develop Gantt charts. Identify and focus what research needs to be conducted and work on primary sources.	**March and April** Work on secondary research. Class iteration early ideas and start developing sketch designs.	Prior Learning Students get to pick their own context and use a similar format to analyse the strongest project to conduct. Using the Transition as a valuable guide to encourage independent learning.

SUMMER 1

Theory Paper 2 Paper 2 requires a lot of skills in accelerated reading, concentration, long answer technique, drawing skills such as cut through diagrams and showing hidden detail, comparing 2 products, identifying stakeholders and their needs. This unit of work is designed to build these skills through a range of tasks and Practice questions.	**Theory Topic - Manufacturing** NEA- Develop sketch and card models. Introduction to material and process capabilities within the project.	**Theory Topic - Project management** NEA- Start to develop CAD designing for developments. Design CAD components to potentially 3D print.	**Theory Topic - Legislation** NEA- Developing final design solution. Contacting PU and stakeholders to get feedback.	Prior Learning This paper relies on literacy skills, both the ability to read and comprehend the long questions and to organise and complete long answers. This is built throughout school in a variety of subjects.

SUMMER 2

Theory Paper 2 Paper 2 requires a lot of skills in accelerated reading, concentration, long answer technique, drawing skills such as cut through diagrams and showing hidden detail, comparing 2 products, identifying stakeholders and their needs. This unit of work is designed to build these skills through a range of tasks and Practice questions.	**Theory Topic - Manufacturing** NEA. Develop sketch and card models. Introduction to material and process capabilities within the project.	**Theory Topic - Project management** NEA- Start to develop CAD designing for developments. Design CAD components to potentially 3D print.	**Theory Topic - Legislation** NEA- Developing final design solution. Contacting PU and stakeholders to get feedback.	Prior Learning Students have modelled more simple concepts in the past both on paper and in 3D. This builds on prior knowledge by allowing them to spend time developing design ideas and getting concise feedback.

CAREERS LINKS

Fabrication, engineering, architecture and product design.
This leads on to degree level qualifications or apprenticeships in design, architecture, manufacturing, business and many more.

CHARACTER LINKS

Performance virtues of motivation, resilience and perseverance are fostered when designing and creating products.
Intellectual virtues of critical thinking and reflection are harnessed when modifying and refining design ideas.

KEY ASSESSMENT DATES

Continual assessment of coursework is ongoing.
Practice exam questions are fortnightly and formal practice papers during assessment weeks.