Curriculum Overview

Year 11 – Design & Technology 2021-2022

Rationale for Year 11 Design & Technology

The Year 11 course consists predominately of discrete teaching to support the NEA and of the student's independent time to complete their NEA project. Discrete teaching to support the NEA follows guidelines outlined by the JQC but careful consideration is given to ensure that planning considers, "How is this knowledge going to improve the breadth and depth of the designing and making that the students are learning".
The NEA spread over five half terms, starting in June of Year 10 and a final deadline of Easter. Each half term includes an explicit 8 hours of independent NEA time, teaching to support students' progress in the NEA and discrete theory lessons to support the further development of their subject specific knowledge.

What will students learn and why?

The work in Year 11 is divided into half terms so that students always have half term to finish off and, if necessary modify their NEA work. Each half term starts with project work being submitted from the previous term. Each half term has a specific focus on the design process in the student NEA.
**Half Term 1**. **Design iteration cycle 1 & 2**. In this cycle, students will evaluate their initial designs against their own success criterial and create their initial models. Stakeholders and primary users evaluate these before further iteration takes place. In this work, students learn how to compile their sketchbook based design work into eportfolio's. The students use office 365 to structure their own chronological design story of their work.
**Half Term 2. Design iteration cycle 3 and manufactures specification**. As the students' progress through each iteration cycle, their design focuses less on general ideas and more on resolving specific technical features that are essential requirements for a success final proposal. Once students have locked into a final design resolution, they will create detailed manufacturers specification that will include all details required to manufacture the final prototype. In this work students are taught and practise more advanced presentation work. They refine their use of marker pen for rendering. They refine their skills of drawing in 2 point perspective. The refine their skills of modelling to achieve high levels of both precision and detail in their work.
**Half Term 3**. **Manufacture**. During this phase students manufacture their final prototypes and record how they have done this through the production of a manufacture journal. In this work, students develop their ability to use CAD to realise their designs. Some students will use this to 3d print, others will look to use laser cutting, whilst for some students a more traditional hands on approach may be suitable.
**Half Term 4: Evaluation**. During this phase, the students complete their final evaluations of the success of their design resolution. They will create conclusions, which will be used to propose further iterations. During this time, students will complete their final CAD renders of their design. All students will use this half term to refine and improve their final design folders. These folders will represent 40 hours of independent work.
**Half Term 5**. Students will be using this final half term to prepare for the written exam paper. During this time they will explore the different question types and learn what successful responses for the technical knowledge questions look like and how to apply their knowledge to a wide range of questions.

How will students learn?

The majority of Year 11 involves completing the NEA. Remaining exam specific topics are interleaved around NEA time. The sequence of learning is built upon the demands of the NEA. Rather than aiming, to "get the NEA out of way" as quickly as possible, the NEA is spread across the whole of Year 11, but within a very specific

8 hours of time each half term. This allows the “spacing effect” to improve the learning of the students and builds in more opportunity for reflective thinking and other metacognitive practice to support the students designing. Peer and group work is explicitly taught and built into lesson time so that students can benefit from the ideas of others’ in their own designing.
The learning of the subject specific theory is interweaved around the demands of the students being taught to complete their NEA work. Students will typically be taught new topics as dedicated lesson. The topic will be revisited and expanded in subsequent lessons. Sometimes this is a short episode within the lesson and the students will then spend the rest of the lesson on their NEA work. Sometimes the topic may require further detailed teaching and may take a second full lesson.
All lesson topics are supported with homework using a wide range of online platforms that upon completion are monitored by the teacher. Student progress is measured through regular retrieval tests, focused topic tests, and regular extended writing activities.

How will students be assessed?

Low stakes assessment opportunities are leveraged weekly. Frequent low stakes retrieval tests and through questions answered on online platforms as part of weekly homework, assesses the students. All of which are either self-marking or student marked. A fortnightly 20-question test, which gives students opportunity to develop answers that are more sophisticated than the frequent retrieval and homework tests.
The end of every month includes “whole class feedback” on NEA progress. Students reflect on the feedback, discuss with peers and apply findings back to their own work. JCQ rules dictate that student specific grading and feedback on NEA is forbidden, therefore feedback will reflect features observed across whole class and across the cohort.

What is the aim for learners by the end of the year in comparison to the previous year?

The NEA is a “wicked” real world problem, in which the students must find their own resolution to which there is no specific or predefined “correct” answer. There are unlimited directions that the students can explore in their Designing and Making. This is the unique contribution of D&T to the students learning. During the course, students will learn metacognitive strategies to improve their learning process and resilience as they learn to design and resolve products and systems that only previously existed in their thoughts.
The written exam paper is a 2-hour paper, which examines the students on a wide range of material groups and tools and process and techniques used to fabricate materials into designed forms. They are also examined on their understanding of issues related to design and its impact on the world.