****

**A-Level Design Engineering Guide**

**How Design Engineering will be taught:**

A level Design Engineering is taught through a mixture of modules which are designed to cover the content of the course. This will build your knowledge throughout year 12 until you are a confident design engineers, capable of taking on design challenges and solving complex engineering problems. Each module will have a practical and examined assessment to gauge your development in the subject. We will also be undertaken an exciting project where we will be teaming up with the Product Designers in a team based project, using communication skills to test your ability to work as a team to produce a high quality outcome from a set brief.

**Working expectations:**

You are expected to put at least as many hours into A level Design Engineering outside of lessons as you would in lessons. A level Design Engineering is 50% coursework and 50% exam; in your free periods, aside from homework, you should be going back over the lesson through independently designing and developing your practical skills in the workshops and using the extensive CAD/CAM facilities available at NUAST, as well as using the wider reading booklet to go over the subject of each lesson in much more detail, making your own detailed notes.

**What 100% effort in this subject looks like:**

* As much time out of lesson devoted to product design.
* Keeping up to date with coursework deadlines and realising that developing your practical skills can only be achieved by extra input from you outside of normal timetabled lessons.
* Completing exam style questions on a regular basis to give context to your coursework, doing them as practice and handing them in on time!
* Reading in the wider context about current developments in Systems Engineering, from electronic concepts to the latest developments in industry.

**Book/Folder Policy:**

Your work book and A3 coursework folder should have:

-Drawings, sketches, design developments of ideas you are working on, along with the readings booklet you are using.

- All notes in chronological topic order, produced using the Cornell note making technique.

- All marked coursework and mock exams should always be kept in the back of your folder for reference and to show progress.

PC based coursework

* All your projects will be completed electronically with regular hand-ins via Teams.

**What Marking looks like:**

* You will have regular monthly feedback from your teacher regards improvements, suggestions and advice.
* Coursework will be marked with comments.
* Exam questions will be marked with the relevant mark scheme, comments and discussed individually and as a class to clarify any issues.

**What Homework looks like:**

* Examination questions.
* Practical tasks.
* Modelling with different materials, woods, metals, plastics, 3D printing, CAD/CAM.

**Specification at a glance:**



**Summer preparation**

Your preparation work over the summer is intended to show us why you have chosen Design Engineering for A-Level. Please complete the following:

**Task:**

Produce a single A3 sheet which shows a product disassembly and analysis. You should choose a product which you are able to dismantle, could be electronic or have mechanisms in it, or maybe both. Please make sure you are able to disassemble the product before you start and DO NOT use anything that is 240v!

Your page should include the following:

* An exploded view of your product, this can be drawn or photographed
* Details of the product, highlighting the different parts inside.
* Details of the casing, what makes it strong, how does everything fit in there without moving about.
* What materials is it made from? How do you know this?
* Close up views of any design features in the product. This could be the mechanism, the casing or the circuit.

Remember this is a piece of work you are trying to impress your teachers with. We do not want to see any white sheets of paper with photos on. Try to find a style in presenting your work, make it individual.

**Please bring your work with you to your first lesson.**

**Potentially useful websites:**

Specification:

 [**ocr.org.uk/aleveldesignandtechnology**](file:///%5C%5Ctorchacademy.co.uk%5C8924004%5CStaffHome%5C4004HuOH%5C1.%20HOH%20Main%20Folders%5Chohare%20all%20folders%5CTeams%5CNUAST%20Flying%20start%20pack-%20A%20Level%20Product%20Design.docx)

[Howthingswork.org – Science and Technologies Explained for Everyone](http://howthingswork.org/)

[Introduction to Materials Research (technologystudent.com)](https://technologystudent.com/designpro/matintro1.htm)