# Domain Knowledge and Skills Year 13

| **Year 13** *(as for Years 11 and 12)* | **Food** | **Fabric** | **Metal** | **Wood** | **Electronics/Wood** |
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| **Measuring** | Weighing and measuring ingredients correctly:<br>Scales<br>Measuring jugs<br>Measuring spoons | Measurements of Client (male/female)and ethics related to this | **<u>Precision measurement</u>**<br>*-use of Vernier callipers*<br>*-use of Micrometers ( internal and external)*<br>*-use of D.T.I* | Ability to use Face marks / Edge marks.<br>Can measure using tolerances.<br>Is able to select and apply marking out tools and processes safely and accurately. | Ohms Law.<br>Use of a multimeter to measure values.<br>Ability to measure resistance, capacitance, voltage, current.<br>Measuring performance characteristics of products/system.<br>Use of an Oscilloscope.<br>Measure to identify faults on circuits. |
| **Safe and correct use of tools/equipment** | Ability to use equipment correctly<br>-electric equipment<br>-hobs/ovens<br>-knives/utensils<br>-cooking equipment<br>Ability to select appropriate tool for the task<br>Ability to select, set up and carry out the correct sensory test | Selects and justifies choice of appropriate tools and equipment<br>Demonstrates correct use. | **<u>Welding processes</u>**<br>*-Brazing*<br>*-Braze welding*<br>*-Fusion welding*<br>*-Electric arc and M.I.G*<br>*- Knowledge of T.I.G*<br>*-Plasma cutting* | Ability to select and justify the correct and safe use of: Cutting and shaping hand tools, Portable electric tools and machines. (as per Technology workshop safety document). | Ability to use electronic handtools.<br>Use of correct soldering techniques.<br>Use of a P.C.B. Tank to produce a circuit board<br>Appropriate selection and use of testing equipment. |

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| **Materials Selection** | Understand the functions of ingredients to give desired:<br>-appearance<br>-aroma<br>-texture<br>-flavour/taste<br>-composition<br><br>Understand the nutritional qualities of food<br><br>Understand the effects of processing on food (within class context)<br><br>Understand the requirements for labelling and packaging<br><br>Understand effects of advertising and marketing | Smart fabrics and their application<br>How blended fibres/yarns effect the performance of fabrics | To have an understanding of the make up of materials and the selection of these materials to best meet the needs of the desired product.<br><br>Understand and justify the reasons for a materials (or combination of) used.<br>Function / aesthetics.<br>Availability and cost.<br>Possible consideration of; some recycled materials, sustainability, etc. | Understand the properties of materials used; eg. Manufacture boards/ timber/ Plastics/ Composites/ etc.<br>Understand and justify the reasons for a materials (or combination of) used.<br>Function / aesthetics.<br>Availability and cost.<br>Possible consideration of; recycled materials, sustainability, etc. | Identify component symbols.<br>Understand the function of components and how they are categorised, eg.electrolytic, ceramic.<br>Identify the values of components eg. resistors and capacitors, IC's.<br>Select the appropriate component from a suppliers catalogue.<br><br>Cost out the unit price of components.<br>Identify components into Inputs, Processes and Outputs.<br><br>Appropriate selection of microcontrollers for their function and application. |
| **Techniques** | Food preparation, cooking, presentation, storage<br><br>Food testing<br><br>Sensory testing – ranking test<br>hedonic scale, triangle testing<br><br>Students are able to select and carry out the appropriate sensory test.<br>Students can evaluate sensory test statistically | Storyboards<br>Advanced pattern Drafting to meet client needs<br>Material transformation (trialling of or actual change of the appearance and or the function of the original material)<br>Selection, trialling and execution of advanced construction skills on a range of materials (some would be difficult to handle) | Fits and tolerances (students have an understanding and can apply the following.)<br>o *Types of fits (clearance ,transition and interference)*<br>*Appreciation of imperial and metric system**s.*** | Ability to select and justify the most appropriate joining method. Ability to working to tolerances.<br>Testing and justify the use of; Joining methods, Adhesives, Hardware, Fastenings. | Use of Breadboards to model and test.<br>Modelling of circuits and PCB layouts, eg. croc. clips and eagle.<br>Techniques to packaging electronics, eg. Jointing, mounting of circuit boards.<br>Vacuum Forming mould making.<br>Vacuum forming process.<br>I/O Interfacing to microcontrollers.<br>Linking microcontrollers to pneumatics, hydraulics and mechanical devices.<br>Designing for smart systems. |

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| **Finishing/ Presentation** | Presentation of food on a plate<br>Garnishing<br>Labelling and packaging a food product | Quality Control measures to produce quality outcomes throughout construction | Understand how to prepare materials for finishing.<br>Understand finishing methods and justify their selection.<br>Ability to apply the chosen finishing methods.<br>Correct and safe application of finishes. | Understand how to prepare materials for finishing.<br>Understand finishing methods and justify their selection.<br>Ability to apply the chosen finishing methods.<br>Correct and safe application of finishes. | Material finishing for casing and packaging.<br>Appropriateness of products presentation into its intended environment. |
| **Coes of Practice** | Storage, preparation, cooking, reheating of food safely<br>Safe personal hygiene practices<br>Safe and hygienic practice in the foods room<br>HACCP<br>Quality control<br>Labelling and packaging standards<br>Sterilisation | Copyright Law<br>Consumer Guarantees Act | Safe use of tools and equipment. Copy right laws<br>Patents | Safe use of tools and equipment. Copy right laws, consumer guaranties, accountability. | International standards of compliance<br>Patent and copyright laws |
| ***Commercial practice*** | e.g. Watties systems<br>mass production<br>pilot plant testing | Analyses key stages of commercial practices both inside and outside the fashion industry | Analyses key stages of commercial practices. | Common industry practices to student work. Manufacturing methods.<br>Product Life Cycle | International standards<br>Compliance<br>Product assembly Standards<br>Links with mechanical engineering companies |
| ***Historical and future trends (national and global)*** | Historical and current food trends e.g. preserving | Appreciates the influences of national and global trends together with the historical and social influences on current fashions and can project possible future influences on the developing product. | Appreciates the influences of national and global trends together with the historical and social influences on current trends and can project possible future influences on the developing product. | Relationship of past to future developments.<br>Use of sustainable materials<br>Integration of recycled materials<br>Adaptation of a product to ensure a longer lifespan/ quality product. | Product and component integration<br>Consumer demand trend<br>New methods of practice |