DESIGN TECHNOLOGY - Edexcel IGCSE (2018+) – Revision Tracker

CONTENT TO COVER	**Audit**	Date revised	Date revised	Date revised	**Audit**	Date revised	Date revised	Date revised
Types of material								
understand the physical and working properties and application in relation to plastics, woods and metals								
Smart and modern materials								
develop an awareness and understanding of 'smart' and modern materials, including: thermochromic materials; polymorph; shape memory alloy (SMA); shape memory polymer (acrylic)								
Plastics - able to show a working knowledge of the following:								
thermoplastics (nylon, low and high density polyethylene [LDPE and HDPE], polyethylene terephthalate [PET], polyvinyl chloride [PVC], acrylic [PMMA], polystyrene [PS], polypropylene [PP], acrylonitrile-butadine-styrene [ABS])								
thermosetting plastics (polyester resin including GRP, melamine formaldehyde [MF], urea formaldehyde [UF], phenol formaldehyde [PF] and epoxy resin)								
Woods								
show a working knowledge of natural timbers and understand their classification, properties and use								
understand why timber is seasoned and how to care for timber during storage and construction								
understand steaming and bending of timbers and have knowledge of adhesives' curing times and strengths								
show a working knowledge of the following manufactured boards: plywood, blockboard, chipboard, hardboard and MDF								
understand the advantages and disadvantages of working with manufactured boards compared with solid wood								
Composites								
show an understanding of the term 'composite' and be aware of the practical applications for each of the following composite materials: Kevlar®; carbon fibre reinforced plastic (CFRP); glass reinforced plastic (GRP)								
Metals – able to show a working knowledge of the following metals:								
ferrous metals (cast iron, mild steel, stainless steel, high speed steel [HSS] and carbon steels)								

AUDITS – Assign each topic area with a number representing your confidence level. 1 = Highly confident, 4 = Not at all confident.

DATE REVISED – Add the date after you have revised this topic.

CONTENT TO COVER	**Audit**	Date revised	Date revised	Date revised	**Audit**	Date revised	Date revised	Date revised
non-ferrous metals (aluminium, duralumin and other common casting alloys, copper and its alloys, zinc, lead and tin)								
understand how the following processes can change the molecular structure of a material making it more or less suitable for the task it has to perform: – work hardening – annealing all metals – case hardening of mild steel – hardening and tempering tool steel (HCS)								
Preparation of materials								
show knowledge of available market forms, types and sizes								
understand methods of cutting by use of hacksaw, guillotine, tenon saw, cross-cut saw, panel saw and portable power tools								
understand the use of datum surfaces/lines/edges and be able to produce them by planing or filing								
explain the preparation for machine processes and safe methods of securing materials to work surfaces, work tables, faceplates, lathe chucks and between centres on a lathe								
Setting/marking out/testing								
measure and/or mark out using rule, pencil, marking knife, marker pen, scriber, try square, bevel, mitre square, centre square, dot/ centre punch, dividers, inside/outside/odd-leg calipers, template, marking/cutting/mortise gauge								
accurately produce datum lines by surface plate and scribing block or calipers								
accurately measure using a micrometer, vernier gauge and digital caliper								
Shaping								
(a) Deforming/reforming - understand the following processes: bending, sand casting, die casting, lamination, vacuum forming, blow moulding, injection moulding, extrusion, press forming								

AUDITS – Assign each topic area with a number representing your confidence level. 1 = Highly confident, 4 = Not at all confident.

DATE REVISED – Add the date after you have revised this topic.

CONTENT TO COVER	**Audit**	Date revised	Date revised	Date revised	**Audit**	Date revised	Date revised	Date revised
b) Wastage/addition - select and perform the following forms of cutting and removal of material, and joining and adding to a material to produce the required shape, form or contour: – use hand snips, saws, files, basic planes and abrasive cutters – simple hole boring by hand or machine including pilot, clearance, tapping, countersunk and counter bored holes – use taps and dies for screw cutting by hand – use planes, chisels, gouges and rasps – use abrasive mops, discs and belts – use of centre lathe and wood turning lathe – use of portable power tools								
Joining and assembly								
use various methods of fabrication and fitting to join parts of products, permanently or temporarily								
understand the processes of soldering, brazing , welding, riveting/ pop riveting								
understand methods of carcase, stool and frame construction using permanent and temporary joints								
use holding devices, formers and jigs (for sawing, drilling and bending) to assist joining and assembly								
understand the use of knock-down (KD) fittings for use with manufactured boards such as chipboard, including one-piece and two-piece corner blocks, scan fittings, cam lock and leg fastenings								
understand where to use a wide range of pre-manufactured components, including screws, nails, nuts, bolts, hinges and catches								
understand how sizes of screws, nails, nuts and bolts are specified								
be aware of a range of different adhesives to join a variety of materials and any special considerations needed relating to preparation, application, drying times and health and safety								
Finishing								
understand the preparation for and application of surface treatments								

AUDITS – Assign each topic area with a number representing your confidence level. 1 = Highly confident, 4 = Not at all confident.

DATE REVISED – Add the date after you have revised this topic.

CONTENT TO COVER	**Audit**	Date revised	Date revised	Date revised	**Audit**	Date revised	Date revised	Date revised
be aware of a range of different finishes including oils, paints, lacquers, stains, satin polishes, dip coating								
be aware of surface finishes available for both interior and exterior use								
be aware of the special finishes available that will prevent corrosion or stains, or withstand heat or liquids								
understand the term 'self-finishing' and the processes by which some materials are self-finished								
electroplating, anodising								

AUDITS – Assign each topic area with a number representing your confidence level. 1 = Highly confident, 4 = Not at all confident.

DATE REVISED – Add the date after you have revised this topic.