Horizon Community College - Curriculum Overview

Subject: Engineering

Year 10 (OCR Engineering Design)		
wk	**Theme**	**Teaching**
1	R106 LO1 Unit Intro Scales of Production	Advantages and Disadvantages of One-off, Batch,Mass
2	Production Methods	Advantages and Disadvantages of Automation
3	Manufacturing Methods	Advantages and Disadvantages of Injection Moulding Casting
4	Manufacturing Methods	Advantages and Disadvantages of Machining- Turning
5	Manufacturing Methods	Advantages and Disadvantages of Milling & Turning
6	Manufacturing Methods	Range of common tools and assembly methods
7	Legislation	How Patents, Copyright, Trademarks impact on design and manufacure.
8	Legislation	How the WEEE Directive is used when engineerign a product and what it menas to end of life.
9	Standards	How CE and BSI impact on desing and manufacture.
10	Environment Recycling	How the Six R's are used to develop sustainable products.
11	Environment LCA	How manufacturers use LCA to reduce the environmental impact of manufacture.
12	R106 LO2 Analysis of Existing Products	How to analyse products and present information on three products and a description
13	R106 LO2 Analysis of Existing Products	To be able to identify strengths and weaknesses in similar products.
14	Analysis of Existing Products	Present a summary of research of existing products
15	R106 LO3 Assembly Methods	to undersatnd different assembly Methods and Common Tools
16	Disassembly of existing Product	How to plan a disassembly of an existing product.
17	Disassembly of existing Product	How to use sketching to show the disassembly of a product by drawing & photographing.
18	Disassembly of existing product	Comparing a second existing product and disassembly photo.
19	Components	To be able to identify the Scales of Production used in existing products.

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20	Components	Undersatnding Manufacturing Considerations iof the existing products and components.
21	Critical Evaluation	Identify components, materials, assembly and function of components in an existing product.
22	Critical Evaluation	How product maintenance is considered in the design.
23	R107 Design Specification and Overview	Understanding how the product will meet the user needs and what the product requirements are.
24	Sketching 2D	Learning how to sketch in front, plan side views.
25	Sketching 3D	Understanding Oblique projection and one point perspective
26	Sketching 3D	How to draw using Isometric projection and two point perspective
27	Presentation Techniques	Presentaion skills and application of shading, tone, texture and rendering
28	Annotation and Labelling	How to Label and annotate design proposals.
29	Using ICT to enhance Design	How to use PowerPoint and ICT to enhance design proposals
30	Engineering Drawing	Understanding how to draw in orthographic and add dimensioning
31	Engineering Drawing	How to draw in oblique and do an assembly drawing.
32	Engineering Drawing	Engineering drawing in Isometric and exploded drawing.
33	Engineering Drawing	Developeing a materials cutting list understanding of scale and parts list
34	CAD	USing CAD for 3D Modelling
35	CAD	Learnig how to render parts in CAD.
36	CAD	Understanding how to do a CAD Assembly and Animation
37	Final Design Presentation	Presentation techniques, modelling and communicating design ideas.
38	Cutting List	Using a cutting and parts list to suggets a plan of manufacture.
39	Manufacturing Plan	How to plan the main stages of manufacture

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Year 11 (OCR Engineering Design)		
	Theme	**Teaching**
1	R108 Intro and familiarisation	Introduction to project and presentation format
2	Specification	Developeing a Specification to identify customer needs Product requirements
3	Material Analysis	Researching and Analysing modelling and prototyping materials
4	Material Selection	Understanding material properties and appropriate selection of the materials to be used.
5	Tools and equipment	Being able to selecct and identify common tools, equipment and produce risk assessments
6	PPE	How to identify hazards and select the appropriate PPE.
7	Planning	BE able to use different stages of manufacturing when planning the 3D realisation.
8	Planning	Applying H&S and QC to manufacturing plans.
9	Time Planning	How to set up and populate a Gannt Chart
10	Time Planning	Completeing the Gannt chart
11	Manufacture Manufacturing Diary	How to record the manufacuring processes when marking out
12	Manufacture Manufacturing Diary	Box Cutting and recording of the manufacturing process to add to the diary.
13	Manufacture Manufacturing Diary	Usign the bandfacer to shape the box components and record the stages for the diary.
14	Manufacture Manufacturing Diary	How to use assembly methods to assemble the parts and record to diary.
15	Manufacture Manufacturing Diary	How to use cAD to manufacture, advnatges and disadvantages. Record to diary.
16	Manufacture Manufacturing Diary	Assembling components to the speaker. Recording the stgaes t the diary.
17	Manufacture Manufacturing Diary	Injection moulding of the feet and recording the stages to the diary.
18	Manufacture Manufacturing Diary	Assembly of the feet and recordign the stages to the diary.
19	Manufacture Manufacturing Diary	Soldering of the circuit and ercordign the stages to the diary.

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	Theme	**Teaching**
20	Manufacture Manufacturing Diary	Tetsing and fault finding of the circuit, assmebl and recording the stages to the diary.
21	Manufacture Manufacturing Diary	Finishing and assembly. Recording the stages to the manufacturing diary
22	Manufacture Manufacturing Diary	Finishing, assembly and testing.Recordiong stages to the diary.
23	Evaluation	How to evaluate against the specification.
24	Evaluation	Be a ble to evaluation of own performance.
25	Evaluation	How to present a list of Improvements.
26	External Assessment Preparation	Understanding the Design Cycle.
27	External Assessment Preparation	Understanding Design Needs of a client.
28	External Assessment Preparation	Developing Design Briefs for a client.
29	External Assessment Preparation	Developing a Design Specification
30	External Assessment Preparation	Identifying User Needs
31	External Assessment Preparation	Developing Product Requirements
32	External Assessment Preparation	Be able to identify Manufacturing Considerations
33	External Assessment Preparation	Selct Scales of Production fro different products.
34	External Assessment Preparation	How Wider Influences affect the design and manufacture of a product.
35	External Assessment	External Assessment
36	End of Course	End of Course
37		
38		
39		