Course Outline 19-20

27 May 2019 00:30

All TCH 4-12a							
	L1	**L2**	**L3**	**Homework**	**Assessments**	**N4**	**Time left**
27/5	Introduction to course	Types of Engineer	Memory palaces	Homework 1 (mind map)		ECC - 2	123
3/6	Engineering process Design, Implementation, Testing and control	What do the 7 types of Engineers do at each stage?	Investigating an engineering project - bridge	Homework 2 (Past paper q)		ECC - 2	120
10/6	Investigating an engineering project	Unit Assessment Task Windfarm Task 2A	Unit Assessment Task Windfarm Task 2A	Homework 3 (flipped)	Unit Test ECC - 2.1 and 2.2	ECC - 2	117
17/6	Unit Assessment Task Windfarm Task 2A	Advantages and disadvantages of Engineering projects	Social impacts of Engineering	Homework 1 add to mind map		ECC - 2	114
24/6	Economic impacts of Engineering	Environmental impacts of Engineering	Unit Assessment Task 3a		Unit Test	ECC - 3	111
1/7	End of term	End of term					
19/8	Recap work covered in June Issue Data booklets	Work Done - Energy	Kinetic Energy	Homework (continue calculations)		MS - 1.4	108
26/8	Potential Energy	Electrical Energy	Heat Energy	Homework (practice calculations)		MS - 1.4	105
2/9	Practice Calculations	Recap of Energy and Engineers	TEST - Energy and types of Engineer	Homework (what is a mechanism?)	Unit Test	MS - 1.4	102
9/9	Tests back copy result and comment into planners Start Mech booklet Pages 1 to 5	Lever - Use Fischertechnik to build, test and answer questions Page 6	Belt drives - Use Fischertechnik to build, test and answer questions Page 7	Homework (find an example of a lever and belt drive and take a photo)		MS 1.3	99
16/9	Gears - Use Fischertechnik to build, test and answer questions Page 8	Cams - Use Fischertechnik to build, test and answer questions Page 9	Crank and Slider - Use Fischertechnik to build, test and answer questions Page 10	Homework 1 (mind map)		MS 1.3	96
23/9	Calculations for each type Page 11-14	Tidy up, calculations and any questions pre test	Test	Homework (list as many mechanisms as you can find in real life)	Unit test	MS 1.3	93
30/9	Mechanical Problem to make a door system for the flood prevention task Design a solution (demo how to draw correct symbols)	Implementation Make Solution	Implementation Make Solution	Homework Recap all previous work using mind maps		AVU	90
7/10	Testing Test Solution	Testing Retest and	Report Complete written	Homework What is the	Assignment test	AVU	87

		changes to solution	report and evaluation	difference between AC and DC			
21/10	Introduction to Electricity	Examples of electrical circuits in Eng Sci	Drawing circuits I can identify 13 symbols and describe them. 1. Pupils work through pair task matching. 2. Teacher led check with PPT 3. Copy symbols and names into jotters 4. Draw some circuits with the symbols (tasks at end of PPT) 5. Exit pass - On a post it draw all 13 symbols (teacher check for next lesson)	Homework Recap all symbols		EC 1.1	84
28/10	Components and descriptions	Ohms Law Practice Tasks V equals IR sheet	Test Ohms Law	Homework (flipped difference of series and parallel circuits)	Test	EC 1.1	81
4/11	Yenka Intro	Mapping out Yenka tools in jotter	Series and parallel circuits	Homework (Energy past paper)		EC	78
11/11	Creating Circuits on Yenka	Testing Circuits on Yenka	Resistors tables	Homework (Mechanisms past paper)		EC	75
18/11	Ohms law	Ohms law resistance task	Ohms law resistance task	Homework (Electronics past paper)		EC	72
25/11	Brief - You should design and make electronics for an arcade machine (pinball machine). The electronics should run on a 3V power supply. You may add switches, LEDS, buzzers to create your solution. You must follow the steps to solve and Engineering problem. Design, Make, Test, Evaluate. Today is design, do some research at existing electronics on Pinball machines (record in jotter) Draw your circuit, calculate expected voltage, current and required resistors.	Finish initial design stage - then using Yenka simulate your solution. You should create a test plan to check the circuit is working as expected. Record test plan and results in your jotter.	Building practical solution on a breadboard	Homework (revise all previous topics - guided to use mind maps, notes and practice questions)		AVU	69
2/12	Building practical solution on a breadboard	Test practical solution	Putting electronics on real pinball machines. Writing Evaluation	Homework (revise all previous topics)		AVU	66

9/12	Putting electronics on real pinball machines. Writing Evaluation Get stuff out for showcase	Unit test N4,N5 pupils pick Chilli style	End of term test covering all covered topics; Types of Engineer, Energy, Mechanisms, Analogue Electronics.	Homework (based on the test is there any areas you think you need to work on?)	End of term test		63
16/12	Tests back copy result and comment into planners	Recap weak areas	Recap weak areas				60
6/1	Intro Structural Engineers do… Types of Structures Shell and Frame Examples of each	Units of measurement Matching task Stuck up on wall (5 min task) Why do cranes not fall down? (do task 2 Newtons laws and task 3)	Stick unit table in front of jotter Doing the math (how to lay it out, and find x) Do 3 questions from booklet Make a question for someone else to do	Homework (practice calculations)		MS	57
13/1	Mini paper bridge challenge Design Intro Free body diagrams Print sheets	Mini paper bridge challenge Build	Mini paper bridge challenge Test	Homework (Structures Mind map)		AVU	54
20/1	Mini paper bridge challenge Evaluate	Finish Evaluation	Introduction to the micro controller	Homework Identify and list the order of a traffic light system	Structures project marked	AVU	51
27/1	Flowchart symbols Simple problem Simon says	Flowcharts for common problems	Flowcharts for common problems Traffic light basic	Homework (structures past paper questions Free body Diagrams)		EC 2.2	48
3/2	Flowchart Masters week Pupils work through the National 5 past paper questions. As they get onto each one, they get less support. The final one is a test and should be done by themselves. Pupils have access to circuits on shared drive.	Flowchart masters Filling in input output table	Flowchart masters Test one	Homework (Flowchart past paper question)	Unit test EC 2.2	EC 2.2	45
10/2	Tests back copy result and comment into planners	Logic Introduction Symbols lesson Use show me boards	Truth Tables Matching to symbol and name How does each work	Homework 1 (Logic mind map)		EC 2.1	42
17/2	Making Logic Circuits on Yenka	Recap all of Logic	Logic Test (Past paper questions)	Homework (Electronics past paper questions)	Unit test EC 2.1	EC 2.1	39
24/2	Engineering Contexts and systems recap System diagrams 4 type of engineer	Unit test Task 1	Unit test Task 2a	Homework (ECC past paper questions)	Unit assessment	ECC	36

	Impacts of engineering						
2/3	Task 2B	Task 3	Overflow time	Homework (recap Mechanisms and structures)	Unit assessment	ECC	33
9/3	Mechanisms and Structures Recap Free body diagrams	Mechanisms Recap Rack and pinion	Unit test	Homework (energy past paper questions)	Unit assessment	MS	30
16/3	Energy recap		Unit test	Homework (Structures past paper questions)	Unit assessment	MS	27
23/3	Structures problem - shelter		Unit test	Homework (Structures calculations past paper questions)	Unit assessment	MS	24
30/3	Structures problem -shelter		Unit test	Homework (electronics past paper questions)		MS	21
20/4	Electronics and control		Unit test	Homework (flowcharts past paper questions)	Unit assessment	EC	18
27/4	Electronics and control		Unit test	Homework (look over all notes and mind maps)	Unit assessment	EC	15
4/5	Flood protection task (N4 AVU) Analyse the problem + Systems diagram	Flood protection Sub systems (Electronics, Structures and Mechanisms)	Flood protection Design Flowchart	Homework - recap to support AVU	AVU	AVU	12
11/5	Flood protection Design Mechanism	Flood protection Design Structure	Flood protection Create solution	Homework - recap to support AVU	AVU	AVU	9
18/5	Flood protection Create solution	Flood protection Create solution/test	Flood protection Create solution/test	Homework - recap to support AVU	AVU	AVU	6
25/5	Review of S3 Course	Test - Evaluate	Test Evaluate	N4 AVU Complete - record in Progress record and on AVU assessment sheet - All evidence in folder	AVU	AVU	3