

Outline Programme for Delivery of GCSE

SUBJECT: D&T: Electronic Products

Exam Board: AQA

Specification Title and Number: Design & Technology: Electronic Products 4540

Web link to Specification (e.g. <http://store.aqa.org.uk/qual/newgcse/pdf/AQA-4540-W-SP-10.PDF>)

Year 10

TERM	Topics Covered	Specification Reference(s)	Method(s) of Assessment
1	<p>Sensors project – design & make</p> <ul style="list-style-type: none"> • Resistors (colour code, parallel/series, potential dividing, tolerance, ohm's law) • Transistors • Circuit design • PCB design using software • Breadboard modelling • PCB Photo-etch manufacturing process • Circuit manufacture • Fault finding • Casing design and manufacture – wood • Learning on types of wood, joints etc. • End of project test 	3.1 (page 7-11)	<p>Formative assessment through class discussion and practical circuit simulation.</p> <p>Assessment by practical outcome</p> <p>Summative assessment via workbook exercises, other class work and end of project test</p>
2	<p>Hit the Target project – design & make</p> <ul style="list-style-type: none"> • Capacitors and RC time • Timing circuits (monostables and astables) • Monostable breadboarding and the 555 IC • Counting in binary and decade counters • Circuit manufacture • Vacuum forming/Plug and Yoke moulding processes • Learning on types of plastics and other manufacturing processes e.g. injection moulding • Casing mould considerations and design • End of project test. 	3.1 (page 7-11)	<p>Formative assessment through class discussion and practical circuit simulation.</p> <p>Assessment by practical outcome</p> <p>Summative assessment via workbook exercises, other class work and end of project test</p>



TERM	Topics Covered	Specification Reference(s)	Method(s) of Assessment
3	Temperature meter project – design & make <ul style="list-style-type: none"> • Operational amplifiers (comparators, voltage amplifiers, open and closed loop feedback) • Research exercise on temperature meters • Advanced PCB design using software • Circuit manufacture • Design for adaptation of pre-made casing • Casing adaptations • Learning on CAD/CAM • Use of 2D Design and CAM for vinyl decoration • Yr 10 Exam (theory so far) 	3.1 (page 7-11)	Formative assessment through class discussion and practical circuit simulation. Assessment by practical outcome Summative assessment via workbook exercises, other class work and end of project test
4	Logic alarm project - design <ul style="list-style-type: none"> • Digital electronics and logic • Combinational logic and using NAND gates to make all gates • Latches: Schmitt triggers and thyristors • Piezo-electric buzzers • Using logic to make an astable • Breadboarding final circuit design • End of project test 	3.1 (page 7-11)	Formative assessment through class discussion and practical circuit simulation. Summative assessment via workbook exercises, other class work and end of project test
5	TERM 5 PIC Microcontroller project – design & simulate <ul style="list-style-type: none"> • Microcontrollers and the PICAXE system • Analogue and digital inputs • Programming using flowcharts and BASIC • Circuit simulation and prototyping • Programming • End of project test Revision for GCSE exam (Unit 1)	3.1 (page 7-11)	Formative assessment through class discussion and practical circuit simulation. Summative assessment via workbook exercises, other class work and end of project test



TERM	Topics Covered	Specification Reference(s)	Method(s) of Assessment
6	<p>Revision for GCSE exam and practice papers GCSE Exam Start of controlled assessment (Unit 2)</p> <ul style="list-style-type: none"> • Introduction to project, folder and dates • Choice of design brief and situation within themes • Task analysis • Research – existing products, market, environment, and other relevant areas • Research analysis 	<p>3.1 (page 7-11)</p> <p>3.2 (page 14-16)</p>	<p>Ongoing formative assessment during controlled assessment task with regular written feedback provided at relevant milestones</p>



Year 11

TERM	Topics Covered	Specification Reference(s)	Method(s) of Assessment
1	Controlled assessment – design & make <ul style="list-style-type: none"> • Completion of Research analysis • Specification • Circuit ideas • Casing ideas 	3.2 (page 14-16)	Ongoing formative assessment during controlled assessment task with regular written feedback provided at relevant milestones
2	Controlled assessment – design & make <ul style="list-style-type: none"> • Development • PCB design and parts list • Manufacture of product 	3.2 (page 16-17)	Ongoing formative assessment during controlled assessment task with regular written feedback provided at relevant milestones
3	Controlled assessment – design & make <ul style="list-style-type: none"> • Continued manufacture of product 	3.2 (page 17)	Ongoing formative assessment during controlled assessment task with regular written feedback provided at relevant milestones
4	Controlled assessment – design & make <ul style="list-style-type: none"> • Testing and evaluation • Final project hand in Revision for exam re-sit (if required)	3.2 (page 18)	Ongoing formative assessment during controlled assessment task with regular written feedback provided at relevant milestones Final summative assessment at end of controlled assessment.
5	Revision for exam re-sit (if required) Fun project		
6	Study leave for GCSEs		

