1a) Intent: This course introduces students to how microprocessor control systems are used in a variety of engineering environments. Students develop practical skills by designing, producing and testing the operation of simple electronic controls in three separate units. They will use knowledge and techniques from other subjects such as physics and maths by applying them to electrical circuits. It will inspire and equip students with the confidence to use skills that are relevant to the maintenance, installation and repair sector and more widely. It covers electronic circuits, the components and devices used in electronic and programmable systems, and how to construct and test them.

1b) Careers and further study: This qualification exposes students to a different aspect of engineering from the core qualifications by learning about electronics and PCBs. This could lead to a career in telecommunications, PCB production or the Armed Forces. This gualification could lead to an apprenticeship or Level 3 study at 16 in one of the local electronics companies in Swindon. It also sets students up very well for the varied course content of BTEC Level 3 Engineering where at least one electronics unit will be studied. After a Level 3 qualification, further study at University of Electrical Engineering, a degree apprenticeship or employment with aerospace companies in Bristol.

2) Implementation: The course is undertaken in our specialist electronic workshop with facilities for producing PCBs and programming microcontrollers. Coursework makes up 60% of the qualification and is broken down into two projects – one in Year 10 where students produce their own PCB from scratch and one in Year 11 to program a microcontroller to meet a client brief. This practical work supports and gives context to the examined content which counts for 40% of the marks in a terminal assessment in Year 11.

Implementation – Pedagogical approaches including Rosenshine principles of instruction										
Daily Review	New Material in Small Steps	Ask Questions	Provide Models	Guide Student Practice	Check Student Understanding	Obtain High Success Rate	Scaffolds for Difficult Tasks	Independent Practice	Weekly and Monthly Review	
Mon Tue Wed Thu Fri	•••••••••••••••	***	တိုက္လွ်င္ + ဘိုလ္ = တိုက္လွ်င္	Ś ż					7 31	
Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recail frees working memory for problem solving and creativity.	Our working memory is small, only handling a few bits of information at once. Avoid its overload— present new material in small steps and proceed only when first steps are mastered.	The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.	Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud, help to clarify the specific steps involved.	Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers build in more time for this.	Less successful teachers merely ask "Are there any questions?" no questions are taken to mean no problems. Faise. By contrast, more successful teachers check on all students.	A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.	Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.	Independent practice produces 'overlearning" - a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.	The effort involved in recalling recently -learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.	
• Every unit of work has a series of quiz questions to help students recall key knowledge. These are used in lessons and for prep work.	Teachers define and chunk the steps for students to follow when learning new material. These steps are agreed across the department.	Teachers use cold calling, pair share and stretch it TLAC strategies to check for mastery. Questions are pre- planned.	The visualiser is used across the department. Teachers will 'live' model to demonstrate how to construct analytical and creative texts.	Tasks and activities have been designed so that automaticity can be achieved. Repetition and revision is built into tasks.	Specific mastery checks are embedded into SOLS so that teachers can check for mastery.	We use I do, We do, You do to build students retention of key procedural knowledge and support automaticity.	 Scaffolds are pre- planned so that there is consistency across the department. Testing includes memorisation of scaffolds. 	Students repeat activities and tasks at spaced intervals to support learning of key procedural knowledge as well as knowledge.	We map our quiz questions so that we can test core learning throughout the year. All SOLS have defined 'retention' knowledge.	

KS4	Term 1	Term 2		Term 3	Term 4	Term 5		Term 6	
Year 10	R047 TA1 – Basic Electronic Circuit Parameters R048 TA1 – Use CAD (Electronics)	R047 TA2 – Electronic Components and Devices R048 TA2 – Producing and Populating PCBs R048 TA3 – Test Circuits		R048 – Making and Testing Circuits Coursework	R048 – Making and Testing Circuits Coursework	R048 – Ma Testing (Course	king and Circuits work	Yr10/12 PPES	R047 TA3 – Prototyping and Testing Circuits
Year 11	R049 TA1 – Develop Programmable Systems R049 TA2 – Programming Skills	R049 TA3 – Test and Evaluate Systems	Year 11/13 PPES	R049 – Developing Systems Coursework	R049 – Developing Systems Coursework R047 TA4 – Commercial Production	R049 – Developing Systems Coursework	Year 11/13 PPES	GCSE Exa	ams and revision

3)Impact:

Data analysis of Summer exam series 2023

Y10 Grades	All students in subject %	SEN %	Disadvantaged (PP) %	Males %	Females %	Students to target	Action	Outcomes
L2D-L2D*								
L2M-L2D*								
L2P-L2D*								
L1P-L2D*								

Destinations: University-Apprenticeships-Work placements-