Suggestions for equipment to support delivery of units in the

9209 Level 4 and 5 qualifications for Electronic and Electrical Engineering

Comment

The major emphasis in the qualifications is the provision of a sound understanding of the relevant engineering science and mathematical theory required for the unit topics. Where feasible, it is desirable that this is supported with laboratory equipment that enables learners to apply the theory in laboratory settings to demonstrate and reinforce their understanding of the subject matter. Experimental activity with the equipment will also give learners the opportunity to develop and apply practical skills that are relevant to the practice of engineering and to the needs of industry. However, in order to do this properly it will be necessary to increase the hours available in the unit to accommodate the additional practical activities. As an example, in most universities, a single laboratory test would require a period of at least three hours for experimentation and report preparation. In some units, several such tests may be necessary. This should be borne in mind when deciding to include practical work in a unit. Since the experimental work is primarily intended to support the teaching programme, the learning outcomes are unlikely to need much changing. However, the aims of the unit should be revised to reflect the additional practical content.

Unit	Level	Equipment	Comment
401	4	Computers	Provide access to a mathematical software package such as derive, Mathcad, Matlab Or Maple
402	4	Computers	Emulation/simulation programs e.g. Pspice
403	4	None	
404	4	None	
405	4	None	
406	4	Computers	Provide access to a statistical software package such as Minitab, SAS, SPSS, Excel
407	4	Computers	Provide access to a modern 3D CAD software package
408	4	Computers, LAN hardware, serial bus analyser/bus analyser, RF/microwave analyser,	Communication emulator
409	4	Transformer testers, 3-phase electrical supplies, a motor/ generator test bench	
409	4	Transformer testers, 3-phase electrical supplies, a motor/generator test bench	

410	4	Computers, cable-fault detection equipment	
411	4	Computers, electrical multifunction testers, clamp meters, digital and analogue multimeters	Electrical installation design simulation
412	4	Computer, secondary current injection test set	
413	4	Power and quality energy analyser, micro-Ohmmeters, oscilloscopes, logic analysers, storage scopes	
414	4	Computers, PLC development software	
415	4	Computers	Emulation/simulation programs e.g. Pspice
416	4	Computers	Emulation/simulation programs e.g. Pspice
417	4	Computers	
418	4	None	
419	4	Computers	Provide access to a 2D CAD software package
420	4	Computers	C programming development tools
421	4	None	
422	4	None	
423	4	None	
424	4	None	
425	4	None	
426	4	None	
427	4	None	
428	4	None	
501	5	None	
502	5	Computers	Emulation/simulation systems e.g. Pspice
503	5	Project specific	This unit should be an applications-based project with the learner given hands-on control
504	5	Computers	Provide access to project management software
505	5	Table-top equipment for experimentation with experimentation with systems	To support developing skills with measurement systems and control system design
506	5	Computers , LAN hardware serial bus analyser/bus analyser, RF/microwave analyser	Communication emulator
507	5	Computers	
508	5	Computers	

509	5	Computers, transformer testers, 3 phase electrical supplies, a motor/generator test bench	
510	5	Computers	Emulation/simulation programs
511	5	Computers	