High Tunstall College of Science Curriculum Intent

Unit 9: Exploring Electrical Principles and Techniques

BTEC Construction & The Built Environment

Leaning Aim B— Develop practical skills using safe techniques to undertake electrical operations

	BTEC Construction and the Built Environment	Progress		
Topic	**Key ideas**	**R**	**A**	**G**
Exploring Electrical Principles and Techniques	Carry out a risk assessment			
	Comply with safe working practices (including using P.P.E.)			
	Measure and mark out cables and conduits to produce a test rig circuit within tolerance levels			
	Construct a test rig circuit consisting of a ring final circuit. Circuit to include: 2 sockets; fused spur; and single switch with lamp			
	Tolerance levels of circuit: Sockets level within 2 mm; neatly fixed; no exposed conductors; earth sleeving in position; correct colour coding.			
	Test rig must: pass tests for continuity; insulation resistance & polarity			

Lesson	Learning Focus	Assessment	Key Words
1	Introduction to Unit 9: Learning Aim B. Risk assessment prior to completing practical activities—Hazard identification and risks associated	Live marking/P.P.E. Work sheet/Unit assessment task	*Risk Assessment, Hazard, Identification, Practical, Electricity*
2	Risk assessment prior to completing practical activities—Identifying people at risk and control measures	Live marking/Unit assessment task	*Risk Assessment, Health & Safety, Control, Measures*
3&4	Risk assessment prior to completing practical activities—Adoption of safe working practices and the importance of testing	Live marking/Risk Assessment Table/Unit assessment task	*Risk Assessment, Working Practices, Testing*
5	Marking out electrical runs and sockets—Industry expectations and standards	Live marking/Unit assessment task	*Marking out, Electrical Runs, Sockets, Industry Standards*
6	Electrical installation methods and procedures—Industry expectations and standards	Live marking/Formative Assessment & Deep Marking Grid/Unit assessment task	*Installation Methods, Industry Standards*
7 **Assessment task—H&S written statement (1 hour)**	**Assessment task 1: (L1P/L2P)** Written statement to show the heath & safety considerations prior to practical work. Including: • Hazard identification/Identification of people at risk/Control measures/Adoption of safe working practices/Importance of testing for continuity, insulation resistance and polarity	**Final Unit Assessment task 1 (L1P/L2P)** *Expectations:* * Written statement covering all stated areas of a risk assessment * Written for a given electrical task and in preparation for practical element of the unit	
8-17 **Practical Assessment task (10 hours)**	**Assessment task 2: (L1P/L2P/L2M/L2D)** Completion of a practical test rig to develop electrical operational skills. Including: • Marking out (Interpret drawn information; Mark out lengths of cable; Cut cable; Mark out conduit required, cut to length and install • Ring final circuit with: Two socket outlets; Fused Spur using surface mounted conduit • Lighting circuit with: Batten holder using surface-mounted conduit	**Final Unit Assessment task 2 (L1P/L2P/L2M/L2D)** *Expectations (Distinction level):* * *Measure and mark out cables and conduit to: Given specification; Accurate to 1mm deviation from straight; No insulation damage by hammer or clips* * *Construct a test rig circuit as specified to the following: All sockets level to within 1mm; Conduits neatly fixed; No exposed copper conductors; No exposed electrical conductors; All earth sleeving in position; Correct colour coding.* * *Test Rig must: Pass test for continuity, insulation resistance and polarity*	