Scheme of Work

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Course:	**Pearson BTEC Level 4 Higher Nationals in Construction and the Built Environment**	**Unit/module :**	**3/Science and Materials**	**Year:**	**2023-2024**
Tutor:	**Adewale Abimbola**	**Time:**	**16 Weeks, 1.45 hours per week**		

Sessions	Learning Outcomes (s)	Session Activities
1	N/A	Induction
2	LO3	**Topics: Unit introduction and slump test** Presentation and discussion of the unit brief, Pearson-set theme, unit learning outcomes, and assessment criteria. Presentation on slump test. **Sample activities:** Student discussion of learning outcomes and assessment criteria. Students to analyse slump tests results. Students to discuss how the results from the tests can affect the selection of the materials for use in the construction/civil engineering industry.
3	LO3	**Topic:** Concrete compressive strength test. Presentation on concrete compressive strength test. **Sample activities:** Students will analyse concrete compressive strength tests results. Students will discuss how the results from the tests can affect the selection of the materials for use in the construction/civil engineering industry.
4	LO3	**Topic:** Brick compressive strength test. Presentation on brick compressive strength test. **Sample activities:** Students will discuss the classifications and material properties of clay bricks. Students to analyse brick compressive strength tests results. Students will discuss how the results from the test can affect the selection of the material for use in the construction/civil engineering industry.
5-6	LO3	**Topic:** Tensile test of steel. Presentation on tensile test of steel. **Sample activities:** Students will explain the forces on structural members. Students to analyse tensile strength tests results. Students to discuss how the results from the test can affect the selection of the material for use in the construction/civil engineering industry.
7	LO3	**Topic:** Structural behaviour of steel. Presentations on structural behaviour of steel.

		Sample activities: Students will define tensile stress, tensile strength, compressive stress, and compressive strength. Students to calculate stress, strain and young's modulus values. Students to use factor of safety in the determination of the maximum allowable working stress.
8	LO3	**Topic:** Structural behaviour of concrete. Presentations on structural behaviour of concrete. **Sample activities:** Students will the different types of loading. Students to determine the densities of the construction materials. Students to calculate the dead load of building elements made from different construction materials.
9	LO3	**LO3 Revision**
10	LO4	**Topic:** Indoor environmental quality, calculation of u-values. Presentation on indoor environmental quality, calculation of u-values. **Sample activities:** Students will identify the factors that affect human comfort. Students to define a material selection strategy with regard to human comfort requirements. Students to identify materials for a selected area within a building and explain how these contribute to a balanced indoor environment.
11	LO4	**Topic:** Calculation of power loss; fabric and ventilation. Presentations on calculation of power loss; fabric and ventilation. **Sample activities:** Students will to determine fabric heat loss and associated calculations. Students to determine ventilation heat loss and associated calculations.
12	LO4	**Topic:** Passive and active design strategies. Presentations on passive and active design strategies. **Sample activities:** Students will differentiate between active and passive design strategies. Students to discuss the basic principles of passive heating, passive cooling, daylighting, indirect lighting and materials issues.
13	LO3&4	**Issue Assignment 2** Tutor discuss submission requirements for the assignment. Students are introduced to the assessment process for the assignment, breakdown of the assignment requirement, revisit learning outcomes and criteria.
14-15	LO1&2	**Support & Independent study** **Topic: Assignment 2 – Independent study & support sessions**

		Students, working individually, begin to identify resources required in relation to their proposed project. Students may meet with tutor, individually or in groups, to discuss their projects and receive advice in support of developing final outcomes, report and presentation.
16	LO1&2	**Submit Assignment 2** Students, working individually, to complete and submit the assignment. Students may meet with tutor to discuss their projects and receive advice in support of developing final report.