

**Level I Content Outline****Technician Trainee**

The candidates for NICET certification at Level I in Construction Materials Testing – Concrete should have the knowledge, experience and basic skills needed to work in the industry. Under direct supervision, they become familiar with sampling standards (for example, ASTM and AASHTO); follow sampling procedures; conduct various methods of concrete testing; gain a basic understanding of concrete properties; perform basic math calculations; read with basic comprehension skills, grasping construction and materials terminology; use safe practices such as wearing personal protective equipment; identify task-specific hazards; verify current calibration and equipment operation; verify that concrete materials are to specifications; support engineers by performing routine testing and work in vertical or horizontal construction.

1.1 Personal and Worksite Safety

(Questions related to these tasks make up 5-15% of the exam.)

- 1.1.1 Determine and wear personal protective equipment (PPE). 12, 48, 50, 51, 52
- 1.1.2 Identify and report task-specific hazards. 2, 4, 40, 48, 51

1.2 Plans and Specifications

(Questions related to these tasks make up 5-15% of the exam.)

- 1.2.1 Identify locations on site from locations on plans. 39, 41, 47, 53
- 1.2.2 Identify test frequencies and requirements. 2, 6, 12, 23, 31, 53

1.3 Sampling of Concrete Mixes and Components

(Questions related to these tasks make up 10-20% of the exam.)

- 1.3.1 Collect samples of plastic concrete. 11, 12
- 1.3.2 Collect samples of mix components (including labeling). 21, 22
- 1.3.3 Collect masonry units (e.g. block or brick). 34
- 1.3.4 Document source of samples (e.g. aggregates or plastic concrete). 3, 21, 22, 43, 49
- 1.3.5 Document placement location for plastic concrete. 2, 20, 32, 36, 43
- 1.3.6 Document mix information. 4, 5, 6, 30, 43

1.4 Concrete Mix Sample Preparation, Storage, and Transportation

(Questions related to these tasks make up 5-15% of the exam.)

- 1.4.1 Prepare samples for strength testing. 17, 42
- 1.4.2 Transport samples of plastic concrete to on-site testing location. 2, 12
- 1.4.3 Wet sieve plastic concrete. 2, 12, 37
- 1.4.4 Site cure samples. 2, 48
- 1.4.5 Transport hardened concrete samples to the laboratory. 2, 5
- 1.4.6 Lab cure prepared specimens. 2, 15
- 1.4.7 Reduce samples to testing size. 5, 9, 18, 25

1.5 Field and Laboratory Testing of Concrete Mixes and Components

(Questions related to these tasks make up 35-45% of the exam.)

- 1.5.1 Determine temperature of plastic concrete. 19
- 1.5.2 Perform slump tests. 11
- 1.5.3 Determine air content pressure method. 8, 14
- 1.5.4 Determine air content volumetric method. 13
- 1.5.5 Determine air content gravimetric method. 10
- 1.5.6 Determine unit weight. 1, 10, 14
- 1.5.7 Cast strength specimens. 2, 12
- 1.5.8 Perform aggregate gradation tests. 3, 7, 8, 9, 21, 26, 27, 45
- 1.5.9 Perform moisture content tests. 16, 28
- 1.5.10 Perform compressive strength tests of concrete cylinders. 4, 17, 33, 44



1.6 Communication of Results

(Questions related to these tasks make up 5-15% of the exam.)

- 1.6.1 Collect required test data for reports. 2, 10, 24, 29, 31
- 1.6.2 Document field observations. 4, 8, 13, 48
- 1.6.3 Complete test forms and related reports. 4, 7, 16, 29, 35
- 1.6.4 Report results to supervisor. 20, 21, 29, 46
- 1.6.5 Assess reasonableness of results. 5, 9, 14, 29, 31, 38, 45

1.7 Equipment Calibration and Maintenance

(Questions related to these tasks make up 1-8% of the exam.)

- 1.7.1 Verify lab testing equipment is calibrated for Level I tests. 17, 37
- 1.7.2 Verify field testing equipment is calibrated for Level I tests. 2, 11, 17
- 1.7.3 Verify dimensions of field equipment. 2, 10, 11, 13
- 1.7.4 Verify equipment operation for Level I tests. 7, 9, 10

October 25, 2018

footnote number is linked to a reference on the Selected General References listing