

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

The candidates for NICET certification at Level I in Construction Materials Testing – Asphalt 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) for mix design and submittal; follow sampling procedures to obtain a sample; identify task-specific hazards; perform a variety of tests, such as field density, aggregate gradation, and asphalt content; perform basic math calculations; read with basic comprehension skills, grasping construction and materials terminology; reduce samples to testing size; use safe practices such as wearing personal protective equipment; use splitting equipment; and verify current calibration and equipment operation for tests.

**1.1 Personal and Worksite Safety**

(Questions related to these tasks make up 3-7% of the exam.)

- 1.1.1 Determine and wear personal protective equipment (PPE). 49, 52
- 1.1.2 Identify and report task-specific hazards. 16, 24, 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. 42, 43, 44, 45, 47, 48, 50

**1.3 Sampling of Asphalt Mixes and Components**

(Questions related to these tasks make up 12-22% of the exam.)

- 1.3.1 Document sampling locations. 6, 7, 8, 17
- 1.3.2 Follow sampling procedures to obtain samples. 6, 7, 8, 17, 22
- 1.3.3 Compare sampled material to product submittals. 46
- 1.3.4 Label sample origin and material. 6, 7
- 1.3.5 Deliver samples to the laboratory. 6, 7, 22

**1.4 Asphalt Mix Sample Preparation**

(Questions related to these tasks make up 8-18% of the exam.)

- 1.4.1 Reduce/split samples to test size. 3, 4, 5, 34
- 1.4.2 Condition the samples for testing by temperature. 2, 5, 10, 11, 20, 25, 35, 37
- 1.4.3 Label the prepared samples. 6, 7, 8, 30, 33, 36, 37

**1.5 Field and Laboratory Testing of Asphalt Mixes and Components**

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

- 1.5.1 Perform field density tests of compacted asphalt mixes. 16, 41
- 1.5.2 Perform aggregate gradation tests. 2, 3, 33, 35
- 1.5.3 Perform asphalt content tests of asphalt mixes (e.g., extraction, ignition, and nuclear methods). 12, 14, 19, 24
- 1.5.4 Determine the moisture content of asphalt mixes. 9, 40
- 1.5.5 Determine the moisture content of aggregates. 1, 4
- 1.5.6 Perform the maximum theoretical specific gravity and density tests of asphalt mixes. 11, 38
- 1.5.7 Perform the bulk specific gravity tests of compacted asphalt mixes. 15, 39
- 1.5.8 Perform the fractured face tests of aggregates. 23



## **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. 11, 15, 21, 23

1.6.2 Document field observations. 26, 27

1.6.3 Complete test forms and related reports. 2, 3, 29, 32, 35

1.6.4 Report results to supervisor. 6, 31

1.6.5 Assess reasonableness of results 3, 11, 13, 16

## **1.7 Equipment Calibration and Maintenance**

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

1.7.1 Verify current calibration for Level I tests 28

1.7.2 Verify equipment operation for Level I tests 11, 13, 18, 28

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