

**Level IV Content Outline****Senior Engineering Technician**

The candidates for NICET certification at Level IV in Construction Materials Testing – Asphalt should have the knowledge, experience and skills needed to serve as project managers under the guidance of a registered professional engineer. They perform advanced testing; develop project budget estimates; create complex sampling programs; select the appropriate tests; supervise laboratory and field testing operations; resolve inconsistent specifications; trouble shoot problem areas; evaluate technical data, materials, conditions and give recommendations; estimate materials quantities; supervise and train Levels I, II and III technicians, reviewing their testing procedures and practices; manage equipment maintenance and calibration; manage safety and accreditation programs; and prepare reports.

**4.1 Safe Practices**

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

- 4.1.1 Develop company safety program. 29
- 4.1.2 Maintain company safety program. 1
- 4.1.3 Develop site specific job safety plans. 14, 27
- 4.1.4 Train staff to perform job hazard analysis. 14, 29
- 4.1.5 Investigate safety issues. 27, 30
- 4.1.6 Perform radiation safety officer (RSO) duties. 26, 30

**4.2 Plans and Specifications**

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

- 4.2.1 Develop project budget estimates.
- 4.2.2 Estimate materials quantities
- 4.2.3 Resolve inconsistent specifications. 1, 13, 31

**4.3 Testing of Asphalt Mixes**

(Questions related to these tasks make up 15-25% of the exam.)

- 4.3.1 Perform advanced asphalt mix testing. 9, 10, 12
- 4.3.2 Evaluate technical data related to asphalt testing. 2, 7, 9, 10, 12, 20

**4.4 Asphalt Mix Design**

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

- 4.4.1 Establish asphalt mix proportions. 1, 25
- 4.4.2 Select materials used in asphalt mixes. 1
- 4.4.3 Verify test results of asphalt mix designs. 1, 25
- 4.4.4 Develop job mix formulas (JMF). 1

**4.5 Quality System**

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

- 4.5.1 Implement changes in industry standard. 4, 5, 6, 8, 18, 22
- 4.5.2 Create the asphalt testing laboratory quality system. 4
- 4.5.3 Manage the asphalt laboratory accreditation. 4, 5
- 4.5.4 Manage the technician training program. 4, 5, 6, 18

**4.6 Reporting and Supervision**

(Questions related to these tasks make up 17-27% of the exam.)

- 4.6.1 Finalize asphalt test reports. 3, 4, 10, 11, 12, 16, 21, 23
- 4.6.2 Develop preliminary recommendations to Engineer in Charge 7, 15, 17, 19, 26
- 4.6.3 Manage company resources, e.g., employees, schedules, budget, equipment. 4, 13, 18

December 1, 2019      footnote number is linked to a reference on the Selected General References listing