

North Carolina Department of Transportation  
Division of Highways  
Materials and Tests Unit – Field Operations Section  
Summary of Certification Courses

## **Soils Courses**

Course Name: **Aggregate Sampling (Roadway)**

Course Code: MAT 210

Length of Class: 4 hours

PDH Credits: 2 hours

Registration Fee: \$100.00

Self-study Option Fee (renewal only): \$25.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper sampling procedures for obtaining and submitting Roadway Acceptance (RA) and Roadway Informational (RI) samples. Aggregate materials include ABC, CTBC, Stabilizer Aggregate, and Class IV Material delivered to a project. To maintain or renew this certification a self-study option is available for a fee of \$25.00. When completing the self-study option, the technician is responsible for studying and preparing for the written examination.

Course Name: **Conventional Density**

Course Code: MAT 230

Length of Class: 2 days

PDH Credits: N/A

Registration Fee: \$200.00

Self-study Option Fee (renewal only): \$25.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper testing procedures for performing various density acceptance tests on soils materials (i.e., embankment, subgrade, chemically stabilized subgrade, etc.). To maintain or renew this certification a self-study option is available for a fee of \$25.00. When completing the self-study option, the technician is responsible for studying and preparing for the written examination.

Course Name: **Borrow Pit Sampling**

Course Code: MAT 410

Total Length of Class: 4 hours

PDH Credits: 2.5 hours

Registration Fee: \$100.00

Self-study Option Fee (renewal only): \$25.00

Retest Fee (retake due to failure): \$50.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper sampling procedures for obtaining and submitting soil samples from a proposed borrow pit. To maintain or renew this certification a self-study option is available for a fee of \$25.00. When completing the self-study option, the technician is responsible for studying and preparing for the written examination.

Course Name: **Chemical Stabilization - Subgrade/Base QA Field**

Course Code: GEO 156

Length of Class: 4 hours

PDH Credits: N/A

Registration Fee: \$100.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Chemical Stabilization – Essentials  
Conventional Density

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper sampling and testing procedures for acceptance of chemical stabilized subgrades/bases (i.e., lime or cement treated). The course applies to CEI personnel working on a Design Build Project.

Course Name: **Nuclear Safety and Hazardous Materials** (NCDOT Personnel only)

Course Code: MAT 250

Length of Class: 8 hours

PDH Credits: 5.5 hours

Registration Fee: N/A

Pre-requisites: None

Certification Length: Indefinite (must complete refresher training every 3 years if actively receiving film badge)

Course Description: This course is designed to instruct technicians and engineers in safety procedures, rules, and regulations regarding radioactive and hazardous materials. The course is for NCDOT employees only and is required by the Department's Radioactive Materials License. NCDOT personnel actively receiving a film badge must also complete refresher training every 3 years (USDOT requirement).

Course Name: **QMS Density Gauge (Asphalt)**

Course Code: MAT 380

Length of Class: 7 hours

PDH Credits: 6.0 hours

Registration Fee: \$100.00

Self-study Option Fee (renewal only): \$25.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is a part of the QMS Program for asphalt and is designed to instruct technicians and engineers in performing nuclear or non-nuclear density acceptance testing for asphalt mixes. To maintain this certification a self-study option is available for a fee of \$25.00. The technician is responsible for studying and preparing for the written examination.

Course Name: **Nuclear Density Testing - Base, Select, and FDR Materials**

Course Code: MAT 370

Length of Class: 6 hours

PDH Credits: 4.5 hours

Registration Fee: \$100.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in performing nuclear density acceptance testing for base (i.e., ABC or CTBC), select, or FDR materials.

## Concrete Courses

Course Name: **Concrete Field Technician**

Course Code: MAT 100

Length of Class: 3 days

PDH Credits: N/A

Registration Fee: \$500.00

Retest Fee (retake due to failure):

NCDOT Written Exam \$250.00

ACI Written Exam \$250.00

ACI Field Performance Exam \$200.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper sampling and testing procedures for acceptance of concrete. The course has two parts, a NCDOT session (covering DOT specification requirements) and an ACI Concrete Field Technician Grade 1 session. The ACI session follows ACI requirements which includes successful completion of a Field Performance Examination and a Written Examination. Successful completion of both NCDOT and ACI sessions is required to perform concrete acceptance testing/sampling for NCDOT projects. Students attending the course for the first time must complete the requirements on the OJT checklist form: [Concrete Field Technician Certification PRE-REQUISITE MEMO and FORM For New Attendees Attached.pdf \(ncdot.gov\)](#)

Please refer to the *Concrete School Policies* posted on the Materials and Tests website for more information.

Course Name: **Concrete Batch Technician**

Course Code: MAT 110

Length of Class: 2 days

PDH Credits: N/A

Registration Fee: \$200.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Concrete Field Technician Class (NCDOT and ACI Sessions)

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper procedures for batching concrete. Successful completion of the Concrete Field Technician course is a pre-requisite to attend. Please refer to the *Concrete School Policies* posted on the Materials and Tests website for more information.

Course Name: **Portland Cement Concrete Pavement (PCCP)**

Course Code: MAT 130 & MAT 131

Length of Class: 2 days

PDH Credits: N/A

Registration Fee: \$200.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Concrete Field Technician Class (NCDOT and ACI sessions)

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper procedures for perform inspection and acceptance of concrete pavement operations. Successful completion of the Concrete Field Technician course is a pre-requisite to attend. Please refer to the *Concrete School Policies* posted on the Materials and Tests website for more information. These courses are scheduled when projects utilize concrete pavement and requested by the Construction Unit. To request a PCCP course contact the local Materials and Tests Section Materials Specialist.

Course Name: **Concrete Mix Design**

Course Code: MAT 120

Length of Class: 3 days

PDH Credits: N/A

Registration Fee: \$150.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites (for initial certification): Concrete Batch Certification and ACI Concrete Field Testing Technician – Grade 1 (pre-requisites not required for re-certification)

Certification Length: 5 years

Course Description: This course was developed to instruct technicians and engineers in the proper procedures for designing concrete mix designs that meet NCDOT Standard Specifications and how to properly submit them for NCDOT approval. Successful completion of the Concrete Batch course and ACI Concrete Field Testing Technician course within the previous 5 years is a pre-requisite to attend. Please refer to the *Concrete School Policies* posted on the Materials and Tests website for more information.

## **Aggregate Sampling and Testing Courses (QC/QA Program)**

Course Name: **QC/QA Aggregate Sampling**

Course Code: MAT 400

Length of Class: 4 hours

PDH Credits: N/A

Registration Fee: \$100.00

Retest Fee (retake due to failure): \$50.00

Pre-requisites: None

Certification Length: 5 years

Course Description: This course is part of the Aggregate QC/QA Program and is designed to instruct technicians and engineers in obtaining coarse and fine aggregate samples at quarries, sales yards, or other stockpiled aggregate locations.

Course Name: **QC/QA Aggregate Testing**

Course Code: MAT 405

Length of Class: 4 hours

PDH Credits: N/A

Registration Fee: \$100.00

Retest Fee (retake due to failure): \$50.00

Pre-requisites: QC/QA Aggregate Sampling Certification and completion of a field evaluation by a representative from the Geomaterials Laboratory

Certification Length: 5 years

Course Description: This course is part of the Aggregate QC/QA Program and is designed to instruct technicians and engineers in performing acceptance tests on coarse and fine aggregate. Students are required to complete an on-site field evaluation demonstrating proficiency in aggregate testing techniques and hold a valid Aggregate QC/QA Sampling certification to obtain this Aggregate QC/QA Testing certification.

## Asphalt Courses

Course Name: **Introduction to Asphalt** (offered online through Stanly Community College)

Course Code: CON-250

Length of Class: 12 hours (online)

PDH Credits: N/A

Registration Fee: \$100.50

Pre-requisites: N/A

Certification Length: Indefinite

Course Description: This course is designed to introduce technicians and engineers to asphalt paving practices and materials and is a pre-requisite for other asphalt training courses. Stanly Community College continuing education program offers this course online and additional information is provided at [Introduction to Asphalt | Stanly Community College - North Carolina](#). Additional information is also provided either on the Materials and Tests website or in the latest edition of the Asphalt QMS Manual.

Course Name: **QMS Roadway Technician**

Course Code: MAT 535

Length of Class: 2 days

PDH Credits: N/A

Registration Fee: \$250.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Introduction to Asphalt Course

Additional Training: Complete and submit QMS Roadway OJT packet [10 Day OJT Checklist Full Packet.pdf \(ncdot.gov\)](#) (first time attendees only)

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper procedures for monitoring and inspecting asphalt pavement operations. Successful completion of the OJT checklist packet is required to attend the course for the first time. Please visit the Materials and Tests website or review the latest edition of the Asphalt QMS Manual for additional information

Course Name: **QMS Roadway Technician** (offered online through Stanly Community College)

Course Code: MAT 535-T

Length of Class: 12 hours (online)

PDH Credits: N/A

Registration Fee: \$250.50

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Introduction to Asphalt Course

Certification Length: 5 years

Course Description: This course is conducted online through Stanly Community College and is designed to instruct technicians and engineers in the proper procedures for monitoring and inspecting asphalt pavement operations. Additional information is provided at Stanly Community College website [QMS Roadway Technician | Stanly Community College - North Carolina](#). This online option is only available for personnel needing to renew their QMS Roadway Technician certification (not an option for first time attendees). Please visit the Materials and Tests website or review the latest edition of the Asphalt QMS Manual for additional information.

**Course Name: QMS Level I Plant Technician**

Course Code: MAT 525

Length of Class: 2 days

PDH Credits: N/A

Registration Fee: \$250.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Introduction to Asphalt Course

Additional Training: Complete and submit QMS Level I OJT packet [QMS Plant Level 1 Tech OJT Full Packet.pdf \(ncdot.gov\)](#) (first time attendees only)

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper procedures for asphalt production, sampling and testing for compliance the NCDOT Standard Specifications and the QMS program. Successful completion of the OJT checklist packet is required to attend the course for the first time. Please visit the Materials and Tests website or review the latest edition of the Asphalt QMS Manual for additional information.

**Course Name: QMS Level II Plant Technician**

Course Code: MAT 530

Length of Class: 2 days

PDH Credits: N/A

Registration Fee: \$250.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: Minimum of one year with a valid QMS Level I Technician

Additional Training: Completion of an approved Mix Design Course

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper procedures for making mix adjustment and asphalt mix problem. Please visit the Materials and Tests website or review the latest edition of the Asphalt QMS Manual for additional information.

**Course Name: QMS Asphalt Mix Design Technician**

Course Code: MAT 580

Length of Class: 1.5 days

PDH Credits: N/A

Registration Fee: \$250.00

Retest Fee (retake due to failure) \$50.00

Pre-requisites: QMS Level I or Level II Technician or completion of Level I OJT and enrollment in a Level I class, or equivalent experience as determined by the Asphalt Mix Design Engineer

Additional Training: Completion of an approved Mix Design Course

Completion of Aggregate Consensus Properties Checklist

Certification Length: 5 years

Course Description: This course is designed to instruct technicians and engineers in the proper procedures for making mix adjustment and asphalt mix problem. Please visit the Materials and Tests website or review the latest edition of the Asphalt QMS Manual for additional information.



## **Bridge Coatings and Welding Certifications**

Course Name: **Bridge Coating Inspection – Level I**

Course Code: MAT 800

Length of Class: 2 days

PDH Credits: 10 hours

Registration Fee: \$150.00

Retest Fee (retake due to failure): N/A

Pre-requisites: None

Priority: Department personnel then CEI firms with a current contract to perform field coating inspections

Certification Length: 3 years

Course Description: This course is to prepare Project Engineers and Inspectors for field coatings inspection projects on North Carolina bridges. The course highlights the requirements of the NCDOT *Standards Specifications* and applicable Project Special Provisions.

Course Name: **Field Welding Inspection**

Course Code: MAT 700

Length of Class: 1 day

PDH Credits: 5.25 hours

Registration Fee: \$50.00

Retest Fee (retake due to failure): N/A

Pre-requisites: None

Certification Length: 3 years

Course Description: This course is to familiarize project personnel with NCDOT and American Welding Society (AWS) specifications that pertain to field welding on bridges and other structures and assemblies.

Course Name: **Field Welder Certification Program**

Course Code: N/A

Length of Class: 4 hours

PDH Credits: N/A

Registration Fee: Refer to program manual

Retest Fee (retake due to failure): Refer to program manual

Pre-requisites: None

Certification Length: 5 years

Course Description: This program is conducted by the Metals Section of the Materials and Tests Unit. This program is maintained to ensure qualified personnel are performing the welding operations on NCDOT projects and applies to all welding whether for temporary or permanent. Refer to the program manual provided on the Materials and Tests website for more information [NCDOT Field Welder Test Program.pdf](#)