

NC Department of Transportation

Engineering Technician I Trainee Program for Private Engineering Firms

ENGINEERING TECHNICIAN I TRAINEE PROGRAM FOR PRIVATE ENGINEERING FIRMS



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INTRODUCTION

The entry-level position for technicians employed by Private Engineering Firms (PEF) providing Construction Engineering and Inspection (CEI) services for the Division of Highways is the Engineering Technician I. This classification's minimum requirements include a Civil Engineering Technology (Associate in Applied Science – A.A.S.) degree or graduation from high school and two years of experience relating to the functional area of assignment, or an equivalent combination of training and directly related experience.

The Engineering Technician I Trainee Program is designed to quickly prepare individuals to meet the requirements for the Engineering Technician I position by taking courses while gaining experience through on-the-job-training. The program allows NCDOT and the CEI Industry to jointly help meet the need for well-trained and qualified construction technicians. The minimum qualification for an Engineering Technician I Trainee is graduation from high school.

Private Engineering Firms may utilize this program to develop individuals to meet the requirements for Engineering Technicians at the Technician I level. However, the Private Engineering Firm must obtain approval from NCDOT prior to placing an Engineering Technician I Trainee on a NCDOT construction project.

In order to complete the Engineering Technician I Trainee Program, the Trainee must complete the required levels within 24 months. Advancement to the next salary level will depend on satisfactory performance which includes daily responsibilities, satisfactory completion of all intended course work, obtaining certifications, and completion of the twelve month intervals.

It is the Department's goal to ensure that the Trainees that advance to the Engineering Technician I level from this program are thoroughly prepared to execute the responsibilities of the Engineering Technician I position.

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OVERVIEW

GENERAL

New employees, who do not meet the minimum requirements for an Engineering Technician I, may be hired as an Engineering Technician I Trainee (Trainee). This classification has two salary levels. Trainees will progress from one level to the next level by earning units through the successful completion of courses, as well as satisfactory performance of job duties. The PEF Project Manager shall be responsible for ensuring the Trainee completes the required coursework and gains on the job experience on construction projects.

MINIMUM REQUIREMENTS AND SUGGESTED COURSE PROGRESSION

A. *Engineering Technician I Trainee (Entry Level)*

- a. High School Graduate or Equivalent
- b. Driver's License

B. *Engineering Technician I Trainee (ETI, 1 year experience)*

- a. Satisfactory performance of typical duties at entry level which includes but is not limited to electronic entry by tablet/laptop of Inspector's daily reports, pay record measurement and documentation in accordance with NCDOT's Construction Manual, satisfactory assessment of materials sampling and testing procedures, and HiCAMS entries.
- b. Satisfactorily complete the following course work, passing the exams and obtaining certifications, where applicable:

Course	Type	Course Reference	Certification
Safety	Self-Study	SSC076	Not Applicable
OSHA Construction 10-Hour (from OSHA authorized instructor or provider)	On-line or Instructor	*	Course Completion Card
Construction Mathematics	Self-Study	SSC014	Not Applicable
Highway Plan Reading	Self-Study	SSC030	Not Applicable
Basic Highway Inspection	Self-Study	SSC050	Not Applicable
Beginning Construction Stakeout	Self-Study	SSC140	Not Applicable
Basic Highway Engineering I	Self-Study	SSC070	Not Applicable
Introduction to Asphalt Pavements**	On-line	CON250	Not Applicable
Erosion and Sediment Control, Level 1***	Instructor		Yes
Conventional Density	Instructor	MAT230	Yes
ABC Sampling	Instructor	MAT210	Yes
Borrow Pit Sampling	Instructor	MAT410	Yes

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- c. Recommendation of the PEF Project Manager and at least one reference letter from NCDOT staff at a Technician Advanced level or higher. This information should be sent to the State Construction Engineer for review and approval prior to advancing to the next level.

C. Engineering Technician I Trainee (ETI, 24 months experience)

- a. Satisfactory performance of typical duties at Level 1, which includes but is not limited to, electronic entry by tablet/laptop of Inspector's daily reports, pay record measurement and documentation in accordance with NCDOT's Construction Manual, satisfactory assessment of materials sampling and testing, HiCAMS entries, plan reading and interpreting construction stakeout.
- b. Complete course work in:

Course	Type	Course Reference	Certification
Basic Highway Engineering II	Self-Study	SSC071	Not Applicable
Structure Inspection	Self-Study	SSC060	Not Applicable
Nuclear Safety and Hazardous Materials	On-line or Instructor	*	Yes
Nuclear Density Testing - Base Select and FDR Materials	Instructor	MAT370	Yes
Erosion and Sediment Control, Level 2***	Instructor		Yes
Concrete Field Technician	Instructor		ACI and NCDOT
QMS Asphalt Roadway Technician**	On-line or Instructor	MAT535	Yes

**Private Engineering Firm personnel must take this course through privately offered resources. Utilize OSHA authorized instructors / providers.*

***On-line asphalt training classes are offered through Stanly Community College.*

****The Erosion and Sediment Control classes are offered through N. C. State University.*

- c. Demonstrate a basic knowledge of construction stakeout and inspection.
- d. Recommendation of the PEF Project Manager and at least one reference letter from NCDOT staff at a Technician Advanced level or higher. This information should be sent to the State Construction Engineer for review and approval prior to advancing the Trainee to the Engineering Technician I level.

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ADMINISTRATIVE PROCEDURES – Private Engineering Firm Employees

Introduction

This training program should be used for technicians who do not meet the minimum Engineering Technician I requirements. Private Engineering Firms (PEF) must obtain the approval of NCDOT prior to placing an Engineering Technician I Trainee on a NCDOT construction project.

Upon enrollment, Trainees shall be provided a copy of the Training Program and shall complete the specified training within a maximum time frame of 24 months. The PEF Project Manager should conduct an orientation meeting with the Trainee to explain the Program and develop a schedule for providing the appropriate training and experience. The schedule should be developed using the PEF Trainee – Progress Tracking Form (CT-001P). The PEF Project Manager should consult with the NCDOT Division Contract Administrator when developing the Trainee’s schedule for completing the program, as project needs may affect the order in which courses are taken. The proposed training schedule should be sent to the Construction Unit, upon enrollment, for tracking purposes. The NCDOT Construction Unit provides assistance with program administration, tracks the progression of trainees through the program, and approves the advancement of the Trainee to the next level.

Entry Levels:

All Trainees must enter the Program at the entry level.

Training and Experience Schedule:

Each Trainee shall be provided a copy of the Training Program, a schedule for course completion and shall be advised of their responsibility in satisfying the training requirements. This schedule shall include target dates for completing each training level and target dates for attending training classes. Trainees are to follow the order of the coursework as scheduled during orientation as much as possible, with adjustments allowed due to work assignments and course availability.

Training

Training Program:

The Trainee should coordinate with their PEF Project Manager to enroll in the appropriate self-study courses through the NC Learning Center. (See Appendix A – “Extended Enterprise Registration” for instructions to access the NC Learning Center). The PEF Project Manager shall be responsible for ensuring the Trainee is enrolled in the appropriate instructor based training classes.

The Trainee shall be responsible for the satisfactory completion of the required training. However, if the Trainee has failed to properly pursue the required courses, the Trainee will not be advanced until the required classes are passed.

If a Trainee has failed to properly pursue the required courses within the 24 month training period, the Trainee will not advance to the Engineering Technician I level. Extensions for special circumstances may be allowed, upon written request to the State Construction Engineer.

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Training Documentation:

The PEF Project Manager shall maintain a record for each Trainee under his/her supervision reflecting time at said level and completion of any training requirements. The PEF Project Manager shall also maintain a record of each Trainee's types of experience. This information should be provided to the State Construction Engineer, with a copy to the NCDOT Division Contract Administrator, at least every twelve (12) months for each Trainee. The State Construction Engineer will review and approve the Trainee's advancement in the Training Program. The Trainee must meet the requirements of the Program to advance to the next level.

Training Verification

Progress Tracking Forms:

The PEF Project Manager shall track the progress of each Trainee using the PEF Trainee – Progress Tracking Form (CT-001P). The PEF Project Manager should perform an interim review of the Trainee's performance upon completion of each level of training or every twelve (12) months. This review should include a consultation with the NCDOT Contract Administrator or his/her designee regarding the Trainee's performance.

The information on the PEF Trainee – Progress Tracking Form is progressive and the order should not be modified. A copy of the completed form should be sent to the State Construction Engineer upon enrollment and at the completion of each level or every twelve (12) months, with a copy to the NCDOT Contract Administrator. Further, Area Construction Engineers will periodically review the progress of Trainees during their routine project and office visits.

Performance:

When a Trainee's performance is not satisfactory (performance is inclusive of daily responsibilities as well as intended course work) or all course work has not been completed within the scheduled 24 months, the Trainee will be removed from the Training Program and will not be allowed to work on NCDOT projects.

Advancement

As the Trainee completes a level of the Trainee Program, the PEF Project Manager should request advancement to the next level of the Program. The request should include at least one reference letter from NCDOT staff at a Technician Advanced level or higher. The State Construction Engineer will be responsible for reviewing and approving this request. If approved, the State Construction Engineer will notify the PEF Project Manager of the approval and copy the NCDOT Division Contract Administrator. The State Construction Engineer will issue the approval for the Trainee to advance and receive the increase in the billable hourly rate.

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PROGRAM RESOURCES

NCDOT Construction Unit
1543 Mail Service Center
Raleigh, NC 27699-1543
(919) 707-2400

NCDOT HR Services, Training & Development
1519 Mail Service Center
Raleigh, NC 27699-1519
(919) 814-2151

NCDOT Resources for Training Courses

NCDOT Materials & Tests Unit:

<http://www.ncdot.org/doh/operations/materials/>

NCDOT Roadside Environmental Unit, Field Operations:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/fieldops/

On-line Training Courses through Other Resources

Stanly Community College:

Introduction to Asphalt:

<https://www.stanly.edu/future-students/continuing-education/introduction-asphalt>

QMS Roadway Technician:

<https://www.stanly.edu/future-students/continuing-education/qms-roadway-technician>

North Carolina State University:

Erosion & Sediment Control, Level I:

<http://go.ncsu.edu/ESCLLevel1-2>

ACI/NCDOT Concrete Field Technician, Grade 1 (OPD-ELACINCDOT-N)

<https://learn.mckimmoncenter.ncsu.edu/search/publicCourseSearchDetails.do?method=load&courseId=9044>

Forms

- PEF Trainee Progress Tracking Form (CT-001P)
- PEF Trainee Enrollment Form / Statement of Understanding Form (CT-002P)

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PEF Trainee Progress Tracking Form (CT-001P)

This form is electronically fillable and is located at the following link:

Engineering Technician I Trainee Program - PEF Trainee Progress Tracking Form

Note: The order of courses may change at the discretion of the NCDOT Contract Administrator, depending on project needs.

Trainee Name:

Personnel No. or Last 4 SSN:



New Hire Date:

Trainee Level	Course	Course Reference Number	Course Type	Begin Date	Target Completion Date	Actual Completion Date	Test Score	Certification Obtained
1	Safety	SSC076	Self Study					Not Applicable
	OSHA Construction 10-HR	*	On-line or instructor					
	Construction Mathematics	SSC014	Self Study					Not Applicable
	Highway Plan Reading	SSC030	Self Study					Not Applicable
	Basic Highway Inspection	SSC050	Self Study					Not Applicable
	Beginning Construction Stakeout	SSC140	Self Study					Not Applicable
	Basic Highway Engineering I	SSC070	Self Study					Not Applicable
	Introduction to Asphalt Pavements**	CON250	On-line					Not Applicable
	Erosion and Sediment Control, Level 1	***	Instructor					
	Conventional Density	MAT230	Instructor					
	Aggregate Base Course (ABC) Sampling	MAT210	Instructor					
	Borrow Pit Sampling	MAT410	Instructor					
	Basic Highway Engineering II	SSC071	Self Study					Not Applicable
	Structure Inspection	SSC060	Self Study					Not Applicable
2	Nuclear Safety and Hazardous Materials	*	On-line or instructor					
	Nuclear Density Testing - Base Select and FDR Materials	MAT370	Instructor					
	Erosion and Sediment Control, Level 2	***	Instructor					
	Concrete Field Technician - ACI		Instructor					
	Concrete Field Technician - NCDOT		Instructor					
	QMS Asphalt Roadway Technician**	MAT530	On-line or instructor					

* Private Engineering Firm personnel must take this course through privately offered resources. For the OSHA Construction 10-hour course, a course completion card is required.

** On-line asphalt training classes are offered through Stanly Community College.

*** The Erosion and Sediment Control classes are offered through NC State University.

Level I Completion:	Date Complete:
Private Engineering Firm Project Manager:	
<i>I attest that the Trainee listed herein has completed the required coursework, on the job training, and certifications to advance to the next level.</i>	
Signature:	Date:
Printed Name:	
Construction Unit:	Approved by: Date:
Level II Completion:	Date Complete:
Private Engineering Firm Project Manager:	
<i>I attest that the Trainee listed herein has completed the required coursework, on the job training, and certifications to advance to the next level.</i>	
Signature:	Date:
Printed Name:	
Construction Unit:	Approved by: Date:

Instructions:

The PEF Project Manager reviews this form with the Trainee at the beginning of the Training Program and establishes a timeline to complete their coursework and receive on-the-job training and applicable certifications. The PEF Project Manager updates the form as the Trainee progresses through the Training Program. Upon completion of the required coursework for each Level, the PEF Project Manager submits this form and the letter of recommendation from a NCDOT employee at a Technician Advanced level or above to the State Construction Engineer for approval to advance the Trainee to the next level. The PEF Project Manager copies the NCDOT Division Contract Administrator.

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PEF Trainee Enrollment Form / Statement of Understanding Form (CT-002P)

Engineering Technician I Trainee Program for Private Engineering Firms



Trainee Enrollment Form / Statement of Understanding

Employee

Name:

This is to acknowledge that I understand I am enrolled in the Engineering Technician I Trainee Program, and that I have been provided a copy of the appropriate schedule of training. I understand that completion of the training requirements as specified in the training program and in accordance with the training schedule is a part of my job responsibilities, and failure to complete the specified training may be grounds for my dismissal from NCDOT projects.

Signature:

Date:

Private Engineering Firm Project Manager

I certify that I have provided the above named employee with a copy of the Engineering Technician I Trainee Program along with a schedule for completing the specified training. I have explained the program to the employee and answered the employee's questions regarding the requirements of this program.

Signature:

Date:

NCDOT Project Assignment Information

Primary Assignment Location:

Division:

Office:

Project:

Instructions

The Private Engineering Firm Trainee and Project Manager sign the form. The Project Manager indicates on the form the Division and the primary NCDOT Office location of the Trainee's assignment. A copy of the completed form should be forwarded to the State Construction Engineer upon the Trainee's enrollment into the training program.

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Appendix A

Extended Enterprise Registration

1. Access the NC Learning Center login page at <https://ncgov.csod.com> **Click here** to create an account:

North Carolina Learning Center

User ID:

Password:

[Forgot Username?](#)

[Forgot Password? click here](#)

Register - [Click here](#) to create account

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2. Enter your information. The DOT EE Code for DOT Construction Contractors is **DOH-XYZ**. Then click **Login**:



* First Name:

* Last Name:

* Email Address:

* User ID:

EE Code (Enter code if provided one)

* New password:

* Confirm password:

- * Passwords must contain both upper and lower case letters
- * Passwords must contain alpha and numeric characters
- * Passwords must be 8 - 20 characters
- * Passwords cannot have leading or trailing spaces
- * Passwords cannot be the same as the Username, User ID, or email address.

Already a user? [Login here](#)
Return to Browsing? [Click here](#)

3. You will be directed to the Welcome page of the NC Learning Center's Extended Enterprise module:

Home Learning

Hello, , let's get started.

Search

Your Transcript

No assigned training

First time here?
Click for help.

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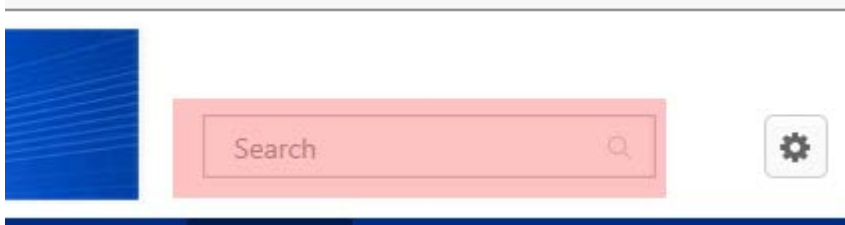
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4. From there you will be able to access your transcript, search for, request and complete training.
5. Training can be located using the system's Search function, located in the top right corner of the screen. Type in a word/phrase and the system will pull up any training you have access to that contains the word/phrase in the Title, Course Description, or is identified as a keyword associated with the course.



Note: The system will require an overnight update before the EE Code functionality is operating in the NC Learning Center. So you will not be able to search for training at the time you create your account.