

PennDOT Construction Inspector Certificate Program				
Unit	Topics	Sub-topics	Suggested Hours	Available trainings and additional resources will be utilized to help develop and support the classroom instruction content.
Course Introduction			0.5	
	Course introduction, expectations and outcomes, general housekeeping, meet the instructor(s), explanation of course structure and how to access TA-TCI module content, take any questions		0.5	Throughout the course, industry trainings (such as AASHTO TC3, NCCER, and Pennsylvania Turnpike Commission Quality Improvement Training) concepts will be incorporated.
Unit 1: Inspection Overview			4	
	What is the Heavy Highway Industry (HHI)?		3	Basic Civil Engineering Principles for Construction Inspectors with Minimal Experience (8 hours of content - available as a Webinar or in person learning)
		Jobs within HHI		Introduction to Inspection with App Training (15 hours)
		PennDOT Overview		Content created by JMT for the HHI Awareness module
		Inspector Responsibilities		
		Day in the life of an Inspector		
		Required, Allowed, and Prohibited Activities		
		The Responsibility Model		
		Procedures for Escalated Issues		
		Ethics		
		Stakeholder Coordination		
		Career Opportunities and Growth Potential		
		Homework: Complete the Inspection Overview TA-TCI module		1
Unit 2: Safety Overview			25	
	Pre-work: Complete the Safety Overview TA-TCI module		1	OSHA 10 and OSHA Fall Protection Training (to be implemented as in classroom instruction)
		The Importance of Safety	1.5	
		Roles and Responsibilities		
		Safety 101		
		Right to Know		
		Personal Protective Equipment		
		Project Site Best Practices		
	Overview of Material Safety Data Sheets		0.5	
	OSHA 10 Training		15	
	OSHA Fall Protection Training		4	
	First Aid Awareness (could be substituted for Independent Learning option of completing Red Cross CPR Training)		1	
	Activity: Safety demonstration of safety harness on-site to demonstrate proper fitment, lanyards, etc.		1	
	Field Trip: Visit a job site for an onsite demonstration of safety features in the field		1	
	Unit 3: Math			
	Pre-work: Complete the Math for Measurement and Payment TA-TCI module		1.5	PennDOT Basic Math for Construction Inspectors (4 hours, available as a Webinar)
	Basics of Math		4	
		Algebra Review		
		Geometry Review		
	Assessment: Basic Math Review		1	
	Intermediate Math		10	
		Fractions, Decimals, Percentage, and Ratios		
		Measuring Length, Area, Volume, and Slope		
		Mixed Numbers		
		Rounding and Levels of Accuracy		
		Unit Conversions		
Assessment: Intermediate Math Review		1		
Unit 4: Plans Reading			19	
	Pre-work: Complete the Plans Reading TA-TCI module		2	PennDOT Traffic Signal Construction and Inspection - Module 3 Plan Sheets (3 hours, includes a certificate of completion)
	Plans 101		1	PennDOT Plans Reading Course (10 hours)
		HHI Plans vs. Other (industry) construction plans		
		Formatting and organization of plans		
		Importance of plans		
		Stationing, Segments, and Offsets		

Plans Standards		2	
	Match Lines		
	Drawing Components		
	Scaling and Dimensioning		
Plans Set Types		2	
	Roadway		
	Traffic Control		
	Cross Sections		
	Structures		
	Drainage		
	Lighting		
	E&S		
	MPT		
	Signing and Pavement Marking		
	Signals		
	As-Builts		
Line Types and Universal Symbols		0.5	
Right of Way and Easements		0.5	
Drawing Views		2	
	Aerial		
	Side		
	Elevation		
	Cross Sections		
	Typical Sections		
	Details		
	Plan (Horizontal)		
	Profile (Vertical)		
Rebar Schedules		0.5	
RCs, BCs, and TCs References		1	
Pub 408, Pub 8, Tab Sheets (and Item numbers)		1	
Basics of Surveying (including reading topographic maps, applied math and slope stakes, stationing, and cut slope)		1	
Monuments and Survey Markers		1	
Utility Markings		0.5	
Intro to 3D Modeling and Digital Delivery		1	
Activity: Review plans examples		1	
Field Trip: Visit a job site and see how the plan translates into the project work		1	
Assessment: Plans Reading		1	
Unit 5: Project Basics		4	
	Introduction to the Field Office	0.25	ECMS II Construction Wave 5 Intermediate (Inspectors)
	Reference Documentation	1	
	Introduction to ECMS and MCDocs App		
	Introduction to Pub 2, 8, 72M, 219M, and 408		
	Source Documentation	1	
	Introduction to eConcrete, eTicketing, and MPT apps, PSA Report, and PPCC	0.75	
	Where to access, save, use PPCC for electronic filing, and field office storing of documents		
	Homework: Complete the Project Basics TA-TCI module	1	
Unit 6: Publications, References, and Software		4	
	Hierarchy of Resources	0.5	Mobile Construction Apps
	RCs, BCs, and TCs Standards	0.5	Mobile Guide Rail Collector App Training
	Administrative Apps (MCDocs)	1	Mobile Construction Concrete Books Apps
	Review of Administration Apps		
	How to find your Resources		
	Activity: Interactive software and apps walkthrough		
	Homework: Complete the Publications, References, and Software TA-TCI module	1	
Unit 7: Introduction to Documentation		4	
	Why We Document	0.25	Utility - Project Site Activity (PSA) Report

Foundations of the PSA Report	0.25	Introduction to Documentation Procedures
Document Management	0.25	Additional existing department app trainings
Audit Trails	0.25	
Effective Communication		
Deescalating difficult conversations	1	
Activity: Complete a PSA Report	1	
Homework: Complete the Introduction to Documentation TA-TCI module	1	
Unit 8: Project Construction	34	
Pre-work: Complete the Construction Phase TA-TCI module	1	NHI - Traffic Signal Design and Operation
Basic Roadway (Includes discussion of operations, equipment, inspection responsibilities, sampling and testing (QA/QC), related specifications, pubs, and standards)		
Roadway Types (new construction, reconstruction, mill and overlay, concrete rehabilitation)		NHI - Bridge Construction Inspection
Excavation/Grading (cut, fill, embankment, core borings, drainage, equipment)		PennDOT Construction Training: Pipe Installation
Subgrade (compaction, remediation, final grading, equipment)		PennDOT Construction Training: Asphalt Paving Surface Preparation
Profiles and Cross Slopes (grade control during construction, string lines, grade stakes)		PennDOT Construction Training: Bridge Deck Testing Placement and Pumping
Drainage (pavement base drain, cross pipes, inlets/manholes, geotextiles, equipment)		PennDOT Construction Training: Bridge Deck Finishing
Subbase (aggregate, equipment, types of subbase)		PennDOT Construction Training: PennDOT Asphalt Sampling, Packaging, and Identification
Asphalt Pavement (milling, types, surface prep, equipment, materials)		Roadside Safety NHI course
Concrete Pavement (load transfer units, joints, patching, curing, overlays, base course)		PennDOT Construction Training: Concrete Delivery Tickets
Pavement Markings (epoxy, waterborne, thermoplastic, types of legends, removal of pavement markings)		ADA Curb Cut Ramp Training
Safety Features (guide rail, signing, lighting, signals, equipment)		Asphalt Paving for Construction Inspectors
Additional Features (ADA/Sidewalks, concrete barriers, curbs, equipment)		Inspection of Pipe Placement
Basic Structures (Includes discussion of operations, equipment, inspection responsibilities, sampling and testing (QA/QC), related specifications, pubs, and standards)		Materials Sampling and Field Testing
Type of Bridge Structures (Girder, Arch, Truss, Suspension, Cable-Stayed, Segmental, Box Culverts)		Align learning objective of this unit to prepare the student for:
Basic Construction Sequence (Site preparation, Shoring, Substructure, Formwork, Superstructure, Concrete Placement, Deck Placement, Roadway Tie-In)		<i>PennDOT Proprietary Barrier and End Treatment Certification</i>
Component Structures of a Bridge (Stakeout Plan, Excavation, Substructure, Superstructure)		<i>NECEPT - Concrete (experience will be required to obtain this certification)</i>
Concrete in Bridge Construction (Reinforced concrete, prestressed concrete, applications, advantages)		<i>NECEPT - Asphalt (experience will be required to obtain this certification)</i>
Earthwork		<i>PennDOT Guiderail Certification</i>
Key Trade Terms		<i>ACI Certification (would be a prerequisite to earning the PennDOT Concrete Cert)</i>
Assessment: Roadway and Structures Construction	1	
Erosion and Sedimentation	1	
Environmental	1	
Soils and Aggregates	1	
Signals and ITS	1	
Lighting	1	
Independent Learning: QVSI Training Certification	12	
Field Trip: Visit a jobsite to assist with inspection of TBD (dependent on the project)	2	
Homework: Complete the Materials Sampling TA-TCI module	1	
Unit 9: Maintenance and Protection of Traffic (MPT)	7.5	
Pre-work: Complete the Maintenance and Protection of Traffic module	1	Introduction to Temporary Traffic Control
Inspector's Role in MPT		Temporary Traffic Control Safety - Deployment & Oversight
Observe and document		
Traffic Control Plan (TCP)		
Short and Long-Term Traffic Control (deployment and oversight)		
Project Documents		
Contracts		
Special Provisions		
Pub 213		
MUTCD		
Using the MPT App	0.5	
Maintaining Safe and Compliant Work Zones	0.5	
Common MPT Devices		
Arrow Boards		
Crash Trucks		

	Traffic Drums	2	
	Traffic Sign		
	Warning Lights		
	Vertical Panels		
	Activity: MPT Plan Implementation	2	
Unit 10: Project Scheduling - Development and Control		4.25	
	Pre-work: Complete the Project Scheduling- Development and Control TA-TCI module	1	ASTA Construction Essentials
	What is a Project Schedule?	0.25	ASTA Powerproject - Design and Construction
	Schedule Types		
	Narrative	2	
	Critical Path Method (CPM)		
	CPM Schedule with Updates		
	Resource-Loaded CPM Schedule		
	Monitoring the Schedule	0.5	
	Activity: Project monitoring chart	0.5	
Unit 11: Project Closeout		3.5	
	Pre-work: Complete the Project Closeout TA-TCI module	1	ECMS II Construction Wave 5 Advanced
	Completing project work		
	Semi-final inspection	0.5	
	Final inspection		
	Punchlist items		
	Project Closeout	0.25	
	Final Project Closeout	0.25	
	Activity: Complete a punchlist	0.5	
	Homework: Prepare pre-work for your resume (template provided)	1	
Unit 12: Preparing for the Workforce		4.75	
	Prework: Complete homework from Unit 11 (prepare for your resume)	0.75	Keep it Civil - The Key to a Thriving Workplace
	Basics of Resumes and Interviewing	1	JMT Internal L&D Trainings on Resume Building and Interviewing
	Activity: Preparing your Resume to be hired	1	
	Activity: Mock Interview	1	
	Review of good work habits and preparing for your role	0.5	
	Check Contractor Bulletin Board postings		
	Recommended additional trainings and certifications (e.g., NICET I, Red Cross CPR and AED Trainings, etc.)	0.5	
Unit 13: Preparing for the Final Exam		4	
Unit 14: Final Exam		2	
Total Hours		138	<i>Includes hours for non-class activities (e.g., homework)</i>
In Class Teacher-Led Instruction		110.75	
Non-Class Learning (e.g., independent learning, homework, and pre-work)		27.25	