Transportation Engineering Training Program (TETP) FY24 BROCHURE

ILT = Instructor Led Training

Pre-Construction Engineering/Technical Skills

Accessible Pedestrian Design at CDOT (NEW E-Learning course Fall 2023)
Accessible Pedestrian Design at CDOT is an on-demand eLearning experience that will support audience members in the performance of duties related to ADA/PROWAG. Upon completion of this course, participants should be able to: Remember ADA standards PROWAG guidelines, Recall the proper use of variance forms, and Apply decision-making skills to confidently address situations involving ADA standards and PROWAG guidelines.

Adobe Sign Training I & II for CDOT/Consultants (E-Learning)
Series of online video trainings to assist CDOT/consultant engineers and managers with step-by-step instructions on the implementation of electronic signatures for contract documents, and eStamping of design reports, project specifications, and construction plans.

Applied Roadway Design (3-day ILT class) $500
This class for professional engineers and engineers in training with 0-5 years of experience focuses on applying CDOT's roadway design principles defined in the AASHTO's "Green Book," as well as other industry-accepted manuals. Computer software programs will not be utilized in the class.

Basics of Cultural Resources Compliance at CDOT (NEW E-Learning course Fall 2023)
The Basics of History Compliance at CDOT, offers an overview of CDOT's process for complying with state and federal historic preservation laws. In this eLearning, you'll explore Section 106 of the National Historic Preservation Act of 1966, Section 4(f) of the Department of Transportation Act of 1966, and the Colorado State Register of Historic Places Act of 1975, all of which require CDOT to evaluate the effect of its projects on historic properties. You will also gain valuable insights into how CDOT historians navigate the complex landscape of regulatory compliance as it relates to historic properties and how this process interfaces with your work in transportation planning, design, and construction.

Context Sensitive Solutions (1-day Virtual ILT class) $150
This course introduces the basic elements and principles of context sensitive solutions. It gives participants the background and tools to work with a multi-disciplinary team to apply context sensitive solutions to project design.

Earthwork Basics and Tabulation (E-Learning)
Calculating and communicating accurate earthwork volumes can be challenging, and the Earthwork Tabulation Tool has been developed to assist with this process. This online course introduces earthwork concepts and terms and provides information and practice in using the Earthwork Tabulation Tool to help provide accurate and consistent data to construction contractors. Learners will gain an understanding of the importance of accurate earthwork information for the contractor, as well as best practices for calculating and communicating this information.

Guardrail Systems for Construction Engineers and Inspectors (E-Learning and Field Guide)
The Guardrail Systems for Construction Engineers and Inspectors training, which was developed in 2017 as a live workshop, is now available as an online learning course. As with the workshop, the online course is intended to help you critically approach the installation, repair, or replacement of guardrail end anchorages to ensure that all elements are compatible and properly installed, and that the basic design is appropriate. Topics include an introduction to guardrail system design and crash testing, CDOT's Manual for Assessing Safety Hardware (MASH) implementation, and the installation and inspection of guardrail terminal systems. The details about guardrail end anchorages, transitions, and median terminals used in Colorado are included in a Field Guide (downloadable PDF file) that you can refer to after completing the course and also use on the job.

Interchange Planning and Design (2-day ILT class) $400
CDOT geometric design engineers and planners, as well as traffic engineers and project managers involved with design and operations of freeway interchanges, will learn about basic traffic operational and geometric design principles for various interchange types. The course covers the latest tools and techniques for planning and designing service interchanges and the process of efficient study for interchange effectiveness.

Intersection Design (New ILT class under development for Spring 2024)
This course is for CDOT geometric design engineers and planners as well as traffic engineers and project managers involved with design and operations of highway intersections. This course will be developed as a continuation of the Applied Roadway Design course with a focus on design elements of intersection layout and function. Attendees will practice using the CDOT Roadway Design Guide, AASHTO's Roadside Design Guide, AASHTO's "Green Book" and other resources to develop design criteria and use those criteria in designing a highway intersection.

Lighting Design Guide (2-day ILT class) $250
The Lighting Design Guide course emphasizes quality lighting for motorists by encouraging effective lighting methods and designing for optimal visibility, minimizing glare, increasing uniformity, and reducing light pollution. By the end of the course, traffic, design, and project engineers will be able to identify highway lighting methods and understand lighting design concepts as well as relevant guidelines, state law, standards, and specifications that are critical to successfully develop lighting plans for transportation projects.

Municipal Separate Storm Sewer System (MS4) Permit Overview (E-Learning)
This online course introduces a general overview of the MS4 Permit to increase awareness and to help employees recognize their role in meeting permit requirements. This course is targeted toward a diverse audience within CDOT whose duties impact water quality with the goal of providing wider knowledge of the MS4 program, its components, requirements, and the necessary actions that must be taken by employees whose work activities may lie within the boundaries defined by the Stormwater Management Plan.

Plan Checking (E-Learning)
A quality set of contract documents results in competitive bids and fewer disputes or claims. The updated process-driven Plan Checking online course provides a basic understanding of how to improve plan quality. This online course now includes details regarding the utilization of a PS&E Checklist.

Reading Structural Plans (2-day ILT class) $400
This course prepares engineers, technicians and inspectors to read and interpret structural plans in order to provide design input, identify design conflicts and constructability issues, and ensure construction compliance. Participants will use existing CDOT structural plans for exercises, activities, and group discussion.

Resilience Program (E-Learning)
The CDOT Resilience Program is a collection of learning materials hosted on SOC Learns that provides instruction on creating robust and sustainable transportation architecture using CDOT's tools and best practices. In today's rapidly changing world, resilience is the key to success. Discover how to anticipate, prepare for, and adapt to challenges and disruptions, as recognized by the Federal Highway Administration (FHWA). With our course, you'll gain a deep understanding of resilience and its importance in transportation systems. Learn directly from experts at the Colorado Department of Transportation (CDOT) as we delve into the tools and best practices they've developed. Through engaging lessons and interactive activities, you'll acquire the expertise to create robust and sustainable transportation architecture.

Roadway Design Manual 2023 (NEW Insights Video Fall 2023)
This TETP Insights video provides a high level summary of the key updates included in the new 2023 version of the CDOT Roadway Design Manual.

Specifications Writing and Development (E-Learning)
Specifications, a critical part of any CDOT contract, communicate the procedures, materials, equipment, and payment terms needed to complete a project. This online course introduces designers to the tools, processes, and best practices for creating specifications packages. There are no prerequisites other than having a basic understanding of CDOT processes and terminology.

Survey Basics for Engineers (E-Learning)
This online course is designed to introduce the fundamentals of surveying as it relates to highway construction projects. The course is segmented into the following modules: Measuring the Earth, Applying Earth Measurements, Land Ownership, Right of Way and Measurement Technologies. Topics include coordinate systems, survey plan sheets and survey data, verifying project location, how to request a survey, and the tools and technologies of surveying. This course also covers concepts of selecting the best method, time needed, accuracy, LIDAR, and total station, among others.

Utility Engineering Project Management (E-Learning & 1-day ILT class) $150
The Utility Coordination course introduces a new paradigm for collaboration with utilities and other stakeholders throughout a construction project. This course focuses on the importance of research and providing detailed information for all stakeholders. It teaches and how being proactive and identifying utilities, even before scoping, affects the design of the project. Additional focus is on assessing and managing risks, coordinating with utilities, and how to develop an effective work plan.

Work Zone Safety & Mobility (E-Learning & ILT Workshop) $150
This proposed course is intended to supplement CCA/ATSSA/NHI/FHWA certification training and address issues common/unique to Colorado. The course will focus on the importance of the Work Zone Mobility Rule implementation (23 CFR Section 630 Subparts J & K) supporting required planning, design, positive protection for workers and reporting for creating safe work zones for roadway workers and the traveling public, by presenting in-depth information and providing practice in creating and utilizing effective Traffic Management Plans and Traffic Control Plans for various types of projects. The course is not intended to teach safety practices within the work zone. The course will include prerequisite e-learning and an instructor-facilitated workshop.

Pre-Construction Project Management Skills

Construction Budget Management for Project Managers and Engineers (E-Learning)
This course provides project managers and engineers with a basic understanding of project construction budgets and an overview of resource allocation. It introduces the software programs used to manage the financial and planning process and covers the budget management process of projects including the Statewide Transportation Improvement Program (STIP), key terms, different project phases, overs/unders, and indirect costs.

Construction - Engineering/Technical Skills

Bridge Inspection Training (2-day ILT class $250)
The Bridge Inspection training program has been developed to increase the knowledge and understanding of CDOT/consultant engineers, technicians, construction inspectors, and maintenance workers on structural and bridge construction projects. The training will discuss commonly identified quality assurance and quality control challenges on CDOT structural projects including high-risk construction elements, critical points where additional documentation or inspection may be needed, and how to anticipate, mitigate, and best manage these elements. Included in the training program will be discussions on bridge demolition, girder erection, deck construction, expansion devices, temporary shoring, MSE walls, deck and bridge rehabilitation, overhead sign structures, and water mitigation and drainage.

Buy America Requirements for Iron and Steel (E-Learning)
This course will introduce you to the requirements for the use of steel and iron products in federally-funded highway construction projects as well as the requirements for the documentation of every process performed on these steel or iron products.

Information provided will also introduce you to two new CDOT tools to help you understand—and make sure you are in compliance with—the Buy America Requirements. The first tool is a flowchart that shows the steps iron and steel products typically go through from initial melting or smelting to permanent incorporation into the project. The second tool is a detailed checklist you can follow to ensure that iron and steel products comply with both the use and documentation requirements.

Construction Change Orders (E-Learning)

For Project and Resident Engineers involved with change orders for construction projects, this course explains the "who, what, when, where, why, and how" of change orders using examples from the simple to the complex. It also explores how change orders and explanation letters need to be written and processed to effectively modify the contract between CDOT and the construction contractor and addresses federal and state regulations and requirements. There are no prerequisites but construction project experience, familiarity with standards/specifications, and familiarity with SiteManager software are strongly recommended.

Construction Force Accounts (E-Learning)
For Project and Resident Engineers involved in working with the force account method of payment on construction projects, this course uses examples of force accounts, from simple to complex, to explain the "who, what, when, where, why, and how" of force account.

Construction Inspector Qualification Testing (Online)
This program was created by CDOT in 2004 to develop a qualified inspection staff in order to obtain a higher-quality end product on the highway. There are three categories of inspection training that have been developed: basic highway math; basic construction surveying; and basic highway plan reading. All construction inspectors—whether from CDOT or a consultant—must demonstrate proficiency by passing an exam and earning certification within the developed categories. CDOT has developed self-study manuals for four of the entry-level certification courses.

Construction Manual - Section 100 (E-Learning)
This e-learning course for CDOT project managers, project engineers, construction engineers, and inspectors introduces the key subsections in the Section 100 Standard Specification. It addresses the basic rules and regulations of project administration and issues . where the majority of conflicts and disputes on a project arise. This is a prerequisite for the instructor-led Construction Project Administration course.

Construction Project Administration (2-day Virtual ILT class) $250
The Construction Project Administration specialty course is intended to introduce CDOT project managers, project engineers, construction engineers, and inspectors to best practices in project administration. This includes understanding the contract and its implications, meeting facilitation, field inspections, paperwork completion and reporting, and documentation helpful to a project's success.

Construction Project Administration for Local Agencies (2-day Virtual ILT class) $150
"The Construction Project Administration for Local Agencies course introduces Local Agency project managers to CDOT's best practices in project administration. This includes understanding the contract and its implications, meeting facilitation, field inspections, federally-required paperwork and reporting, and documentation helpful to a project's success. Each Local Agency will be charged per attendee for the course and course materials.

Construction Project Financials (Form 65) (E-Learning)
This online course identifies and explores the Project Financials Statement, more commonly known as Form 65, and how you can identify, interpret and understand the financial status of your project, focusing on Post-Award.

Disputes and Claims Prevention and Process (Two Half-day Virtual ILT classes) $150
This introductory course provides instruction on resolving disputes and claims according to CDOT specifications, using the Dispute Resolution Board and the Arbitration and Litigation process.

Managing Contract Time (1-day Virtual ILT class) $150
This course is an overview of how to manage contract time designed for Project Managers and Project Engineers. It covers using CPM schedules to manage contract time and address delay issues on construction projects. There will be detailed discussions on issues that arise with an early completion date, how to handle a delay, float ownership, the benefit of using a baseline schedule, and the risks and benefits of certain actions. The Managing Contract Time e-learning Course is a prerequisite for this course.

Materials Technician Certification (E-Learning)
This online course is designed for materials testers who are new to working with CDOT, including consultants and new CDOT hires. The course provides information and simulated situations, so students can learn about and practice the CDOT approach to administering testing, documentation and communication on construction projects. By the end of the course, materials testers will understand their role on a CDOT project and be able to find and use available resources, follow best practices, communicate with team members, enter and verify data in the Laboratory Information Management System (LIMS), and follow appropriate documentation procedures. Prerequisites include successful completion of CDOT's SiteManager Materials (SMM)/LIMS for Samplers and Testers training and at least one current CDOT certification for asphalt, concrete and/or soil testing.

SiteManager (2-day virtual ILT class) – No cost
This hands-on construction project documentation and Pay Estimate system course for PEs and Inspectors will teach participants how to define terms and navigate in SiteManager, add subcontracts, create Daily Work Reports and Diaries, create Change Orders, and generate contractor payment estimates. Participants must be currently assigned to an active construction project and have basic Windows navigation knowledge.

SiteManager Materials and LIMS (Half-day virtual ILT class) – No cost
This is an online class for samplers/testers and those looking to learn about the materials workflow. Will teach participants how to create samples in SiteManager and complete the samples in Laboratory Information Management System (LIMS). Content also includes how to navigate and view project and materials information in CDOT Application for Reporting (CAR). Basic instruction on how to get access to SiteManager is also included.

Work Zone Safety & Mobility (E-Learning & ILT Workshop) $150
This proposed course is intended to supplement CCA/ATSSA/NHI/FHWA certification training and address issues common/unique to Colorado. The course will focus on the importance of the Work Zone Mobility Rule implementation (23 CFR Section 630 Subparts J & K) supporting required planning, design, positive protection for workers and reporting for creating safe work zones for roadway workers and the traveling public, by presenting in-depth information and providing practice in creating and utilizing effective Traffic Management Plans and Traffic Control Plans for various types of projects. The course is not intended to teach safety practices within the work zone. The course will include prerequisite e-learning and an instructor-facilitated workshop.

Construction – Project Management Skills

Construction Budget Management for Project Managers and Engineers (E-Learning)
In this online course, project managers and engineers will gain a basic understanding of project construction budgets, resource allocation and the budget management process during each phase of Pre-Construction. The course introduces the software programs used to manage different parts of the financial and planning process as well as the STIP, key budget terms, overs and unders, and indirect costs.

Reviewing Critical Path Method (CPM) Construction Schedule (E-Learning and 1-day Virtual ILT class) $150
This course teaches the fundamental techniques to create and analyze a Critical Path Method (CPM) schedule. The e-learning course will teach you to use a Microsoft Project schedule. You'll also learn how to create reasonable, achievable design and construction (Form 859) schedules in Microsoft Project based on the project's key tasks. Through the instructor led class, you'll learn how to analyze a complex construction schedule to determine the status of a project and identify slack or float and delays.

Project First Program (Two Half-day Virtual ILT classes) $100
This course will prepare you to successfully use the Project First Program on your projects. Project First formalizes the partnering process to proactively identify and manage risks through collaboration. The goal is to create project wins while maintaining relationships. After you complete this course, you will understand: the requirements of the Project First standard special provision; how to facilitate Project First workshops; how to manage the Escalation Ladder; how to Manage the Issue Documentation Matrix; how to differentiate when an issue should follow the Project First Escalation Ladder vs. the Disputes and Claims for Contract Adjustments process; and understand all the Project First resources.

Professional & Personal Skills for both Pre-Construction & Construction

Negotiation Skills Workshop (E-Learning and 1.5-day Virtual ILT class) $200
This classroom-based workshop will include both distributive and integrative approaches to negotiation, as well as guidance on situations in which each approach may be most appropriate in the context of CDOT's work. Target audiences for this learning include design, construction and specialty groups. At the end of this workshop, you will be able to complete all nine steps of the CDOT negotiation process, from assessing the solution to closing the solution. The Negotiation Fundamentals e-learning is a prerequisite.

Writing for Engineering Professionals (Series of three 1-day Virtual ILT classes) $300
This series of three 1-day classes teaches you writing for the engineering world. All training materials are customized for those in civil engineering, the environmental sciences, construction and related fields. Writing is taught as a science, not an art. Metrics and strategies are provided as objective measures of writing's clarity and conciseness. The training is presented as workshop. Topics include: strategies for adjusting reader perception; methods for improving organization, conciseness and writing flow; using appropriate conventions to express numbers; parallel structure; appropriate use of active and passive voice; problems in agreement; and improving clarity through various punctuation strategies (comma rules, semicolons, hyphens); and more.

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Seating is available on a first come first serve basis. Additional offerings may be provided based on demand and resource availability.

Enrollment
To register for any TETP course view program details here:
www.codot.gov/programs/tetp
All TETP e-learnings are offered at no cost to CDOT external partners

Disclaimer
These educational courses are intended as guidance regarding design, construction and management of transportation projects and do not constitute official rules or regulations of CDOT.

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