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Course Code	Course Title	Description	Objectives	Duration (in hours)
BRG100	Bridge Construction Inspection	This course covers an inspector's responsibilities & the aspects of inspecting bridges upon construction. Focus on: substructure, superstructure, reinforcing steel, slab joints, concrete placement on slabs, finishing concrete, overlays & repairs, & more.	Upon completion of the course the participant will be able to: 1. Explain the principles for checking elevations on a point of a bridge structure during construction. 2. Identify the specifications and locate the tolerances allowed for various items of work performed. 3. Recognize the importance of proper concrete and steel placement in a bridge construction. 4. Explain the importance of knowing and adhering to the plans, specifications, and proposals. 5. Explain why curing concrete is important. 6. Identify the elements of a bridge substructure and superstructure.	24
BRG103	Underwater BRG Repair, Rehab, Countermeasures FHWA-NHI-130091B	This course is designed to enable design engineers to select, design, & specify appropriate & durable repairs to below water bridge elements. As well as to train staff in effective construction inspection of below water repairs.	Upon completion of the course the participant will be able to: 1. Determine whether below water repairs can be completed "in the wet", or require a cofferdam (or similar). 2. Describe typical environmental constraints to performing repairs below water. 3. Describe three methods of achieving a dry construction site within a body of water. 4. List three attributes of good concrete repair mix designs. 5. Describe the differences between flexible and rigid concrete forming systems. 6. Describe underwater concrete placement techniques. 7. Write installation procedures for pile jackets. 8. Describe three methods for repair of pier scour. 9. Describe the benefits of cathodic protection for bridge substructures. 10. Describe four stages of underwater repair activities for underwater construction inspection.	16
BRG105	Bridge Workshop - TxDOT	An interactive workshop on bridge planning, design, construction, inspection & maintenance directed towards TxDOT staff involved in these areas. TxDOT policy will be discussed along with current developments & innovations in bridge design & construction.	Upon completion of the course the participant will be able to: 1. Describe the Highway Bridge Program (HBP) and how it is administered. 2. Describe new and innovative methods for bridge design, construction methods, and maintenance. 3. Describe the bridge inspection program and TxDOT's roles and responsibilities in its administration.	8
BRG106	Load and Resistance Factor Rating of Highway Bridges FHWA-NHI-130092	This course provides participants with in-depth LRFR training in evaluating reinforced and prestressed concrete bridges, and steel bridges, and the fundamental knowledge necessary to apply the most recent AASHTO LRFR Specifications to bridge ratings.	Upon completion of the course the participant will be able to: 1. Describe the purpose of performing a load rating 2. Identify the benefits of LRFR methodology 3. Demonstrate the LRFR process and the general load rating equations 4. Explain legal loads and their use in load rating 5. Determine distribution factors for load rating 6. Describe various state load rating programs 7. State the LRFR limit states 8. Select evaluation factors for load rating 9. Describe the process for load posting and importance of load posting 10. Describe the procedure for checking overload permits 11. Demonstrate the application of LRFR requirements by completing load rating exercises 12. Identify material deteriorations that affect load resistance of bridge components 13. Calculate the flexural and shear resistance of a prestressed concrete girder for load rating 14. Apply the load rating procedures for concrete slab bridges 15. Describe the load rating of concrete culverts and substructures 16. Calculate the flexural and shear resistance of a steel I-girder bridge for load rating 17. Evaluate fatigue for load rating a steel girder bridge 18. Describe the load rating of gusset plates and connections 19. Describe the load rating of timber structures	32

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BRG107	Strut-and-Tie Modeling (STM) for Concrete Structures FHWA-NHI-130126	This STM course provides engineers with a simplistic analysis and design tool for deep concrete bridge elements and disturbed regions that would otherwise require a rigorous refined analysis.	Upon completion of the course the participant will be able to: 1. Describe the fundamentals of STM, including its definition, theory, and historical background 2. Explain the application of STM in bridge design, including identification of B-regions and D-regions and specific applications to bridge superstructures and substructures 3. Describe the required procedures for STM model development and design 4. Explain element-level considerations in STM, including struts, ties, and nodal zones 5. Summarize serviceability considerations in STM, including crack control, shear stress check, and sizing of members to minimize diagonal cracking 6. Explain the STM provisions presented in AASHTO LRFD 7. Apply STM fundamentals and procedures through a comprehensive design example	12
BRG108	LRFD for Highway Bridge Superstructures FHWA-NHI-130081	This course describes Load and Resistance Factor Design (LRFD) for steel and concrete highway bridge superstructures. The course also includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures.	Upon completion of the course the participant will be able to: 1. Describe the bridge superstructure design and construction process in accordance with the current AASHTO LRFD specifications. 2. Apply the appropriate current AASHTO LRFD specification articles dealing with selection of bridge type, size, and location. 3. Apply the appropriate current AASHTO LRFD specification articles dealing with bridge economics. 4. Apply the appropriate current AASHTO LRFD specification articles dealing with bridge materials. 5. Describe the appropriate current AASHTO LRFD specification articles dealing with evolution of bridge design codes. 6. Apply the appropriate current AASHTO LRFD specification articles dealing with bridge loads and load combinations. 7. Apply the appropriate current AASHTO LRFD specification articles dealing with structural analysis. 8. Apply the appropriate current AASHTO LRFD specification articles dealing with concrete bridge superstructure design. 9. Apply the appropriate current AASHTO LRFD specification articles dealing with steel bridge superstructure design. 10. Demonstrate the use of the current AASHTO LRFD specification requirements for superstructure design through the completion of step-by-step procedures, participant exercises, and design examples.	32
BRG109	LRFD and Analysis of Curved Steel Highway Bridges FHWA-NHI-130095	The training course focuses primarily on the analysis and design of skewed and horizontally curved steel I-girder bridges. However, the accompanying Reference Manual also includes design examples for horizontally curved steel box-girder bridges.	Upon completion of the course the participant will be able to: 1. Describe the bridge superstructure analysis, design, fabrication and construction process for skewed or horizontally curved steel I-girder superstructures and for horizontally curved steel box-girder superstructures in accordance with the AASHTO LRFD Specifications 2. Illustrate the application of the AASHTO LRFD Specifications to the analysis and design process for skewed and curved steelbridge superstructures, taking into account erection and construction considerations 3. Demonstrate understanding of analysis and design specification requirements for skewed and curved steel girder bridges through the completion of participant exercises and guided walk-throughs and the review of design examples	40
BRG110	Engineering for Structural Stability in Bridge Construction FHWA-NHI-130102	This course trains participants on the behavior of steel and concrete girder bridges during construction and teach them to identify vulnerabilities and engineering methods to investigate the structure's strength and stability at each critical stage.	Upon completion of the course the participant will be able to: 1. Explain the fundamentals of stability theory and how they affect bridge strength and performance during construction 2. Describe the differences between local, girder, and system (global) stability limit states 3. Recognize the potential for stability-related failures that have occurred in past bridges and how to effectively avoid similar results 4. Select loads, load combinations, and factors that are appropriate for the construction plan verification 5. Explain common techniques for evaluating the stability of bridge member and components 6. Choose an appropriate advanced stability analysis for a critical construction stage where stability is in question 7. Describe the role of bracing and shoring and how to use for providing stability 8. Assess procedures and details for a construction plan that will be safe and economical	20

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BRG111	Tunnel Safety Inspection FHWA-NHI-130110	This course covers the knowledge necessary to manage/execute a successful tunnel inspection based National Tunnel Inspection Standards, Tunnel Ops, Maintenance, Inspection, and Evaluation Manual and Specifications for the National Tunnel Inventory.	Upon completion of the course the participant will be able to: 1. Articulate the importance and purpose of tunnel inspection 2. Apply the fundamentals of tunnel inspection 3. Demonstrate the inspection and evaluation of tunnel structural, civil, mechanical, electrical, signage and lighting, and fire/life safety/security elements 4. Use tunnel inspection references	40
BRG112	Tunnel Safety Inspection Refresher FHWA-NHI-130125	This course covers the entire breadth of knowledge necessary to manage or execute a successful tunnel inspection. The 2.5 day course builds upon participants' prior knowledge of bridge and/or tunnel inspection.	Upon completion of the course the participant will be able to: 1. Explain the importance and purpose of tunnel inspection 2. Apply the fundamentals of tunnel inspection 3. Demonstrate the inspection and evaluation of tunnel structural, civil, mechanical, electrical, signage, lighting, and fire/life safety/security elements 4. Use tunnel inspection references	20
BRG113	Cable-Stayed Bridge Seminar FHWA-NHI-130096	This course provides an overview of the features of cable-stayed bridges; their construction and maintenance considerations; and analyses needed to design these highly redundant structures including special aerodynamic studies.	Upon completion of the course the participant will be able to: 1. Describe the benefits of the cable-stayed bridge as a structure type over other alternatives 2. Identify possible span and cable arrangements 3. Compare steel, concrete or composite superstructure types 4. Select possible pylon shape 5. Define the general approaches for erecting steel and concrete cable-stayed bridges 6. Define the roles and responsibilities of the owner, contractor and construction engineer 7. Identify the needs for aerodynamics studies, testing and evaluation, and discuss practical solutions to mitigate wind effects	8
BRG200	Bridge Inspection Refresher FHWA-NHI-130053	This course refreshes fundamental visual inspection techniques, bridge functions, issues relative to the nations' bridge infrastructures, proper condition & appraisal rating practices & professional obligations of bridge inspectors.	Upon completion of the course the participant will be able to: 1. Describe the current overall condition and condition trends for the nation's bridges. 2. Identify recent National Bridge Inspection Standards (NBIS) revisions. 3. Code National Bridge Inventory (NBI) items accurately. 4. Identify and document inspection observations using standard methods. 5. Evaluate defects based on the 2008 AASHTO Manual for Bridge Evaluation. 6. Code NBI components using the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges. 7. Determine if overall structure/structural member is fracture critical prone. 8. Inspect and evaluate a bridge's four-traffic safety features accurately. 9. List the keys to ensuring a safe work environment. 10. Explain bridge responses and bridge mechanic principles.	24
BRG203	Underwater Bridge Inspection FHWA-NHI-130091	This course provides an overview of diving operations that will be useful to agency personnel responsible for managing underwater bridge inspections. Satisfactory completion of this 4-day course will fulfill the NBIS requirement.	Upon completion of the course the participant will be able to: 1. Explain the need and benefits of inspecting the underwater portions of bridge structures 2. Describe typical underwater defects and deterioration, and identify conditions contributing to rates of deterioration 3. Identify the types of inspection equipment available, and the advantages and limitations of each 4. Identify procedures for planning and performing thorough and safe underwater bridge inspections 5. Assign component and element level condition ratings for underwater components in accordance with NBIS and agency requirements	32

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CON107	PMIS Concept for Administratrs	An overview of PMIS data, reports & analyses for District Administrators, with special emphasis on what information is available and how it can be used.	Upon completion of the course the participant will be able to: 1. Identify the types of pavement evaluation data available in PMIS; 2. Describe the differences between network-level and project-level pavement management, and explain how PMIS can be used to support both; 3. Interpret PMIS data and scores; 4. Use PMIS to monitor pavement condition, estimate total pavement needs, and assess the overall level of service provided by pavement maintenance.	5
CON110	PMIS Visual Rater Cert Conc Pv	This course trains district and contract employees to conduct visual distress evaluations on concrete pavements for the Pavement Management Information System (PMIS).	Upon completion of the course the participant will be able to: 1. Understand the Texas Reference Marker System and know how it is used to identify and locate PMIS sections in the field; 2. Read a PMIS section list and automated rating form to identify the sections; 3. Complete an automated rating form; 4. Identify the distresses rated for concrete pavements; 5. Conduct visual distress ratings for PMIS.	24
CON111	PMIS Visual Rater Cert Flex Pv	This course trains district and contract employees to conduct visual distress evaluations on flexible pavements for the Pavement Management Information System (PMIS).	Upon completion of the course the participant will be able to: 1. Understand the Texas Reference Marker System and know how it is used to identify and locate PMIS sections in the field; 2. Read a PMIS section list and automated rating form to identify the sections; 3. Complete an automated rating form; 4. Identify the distresses rated for flexible pavements; 5. Conduct visual distress ratings for PMIS.	24
CON112	Skid Measurement Sys Op Cert	This course trains district and division employees to operate and maintain calibration of Skid Measurement Systems.	Upon completion of the course the participant will be able to: 1. Identify the components of the system; 2. Demonstrate power-up procedures; 3. Demonstrate calibration procedures; 4. Demonstrate system calibration verification procedures; 5. Conduct measurements; 6. Identify various data formats and process data.	8
CON113	Auto Pave Measure Sys Op Cert	This course trains district and division employees to operate and maintain calibration of Automated Pavement Measurement System.	Upon completion of the course the participant will be able to: 1. Identify the components of the system; 2. Demonstrate power-up procedures; 3. Demonstrate sub-system static check procedures; 4. Demonstrate system calibration verification procedures; 5. Conduct network level measurements 6. Conduct project level measurements; 7. Identify various data formats; and 8. Use Pro-View to process data.	12
CON114	Falling Wt Deflecto Op Cert	This course trains district and division employees to operate and maintain calibration of Falling Weight Deflectometer.	Upon completion of the course the participant will be able to: 1. Identify the components of the system; 2. Demonstrate power-up procedures; 3. Demonstrate calibration procedures; 4. Demonstrate system calibration verification procedures; 5. Conduct measurements; and 6. Identify various data formats and process data.	12
CON116	Critical Path Scheduling-Const	This course teaches construction personnel and designers how to enter and track the progress of a project and the contract time of a construction project using the critical path method (CPM) of scheduling.	Upon completion of the course the participant will be able to: 1. Explain contract time administration and scheduling specifications. 2. Identify the activities that control the overall construction time of the critical path. 3. Check the progess of a project using the project schedule. 4. Measure the affect an impact has on projects.	20

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CON120	Fundamentals of Concrete 201	Provides further information on the material qualities of fresh and hardened concrete, ideal placement, consolidation, finishing and curing techniques, specification requirements, concrete production and delivery operations.	Upon completion of the course the participant will be able to: 1. Discuss the properties of materials used to make concrete. 2. Evaluate concrete construction/material problems and describe troubleshooting methods. 3. Review measures to prevent concrete construction/material problems. 4. Identify issues that affect the durability of concrete.	8
CON204	Using ACI 211 for TxDOT Proj	Course covers concrete mix design techniques, focusing on ACI 211 Standard Practice for Selecting Proportions for Normal, Heavyweight & Mass Concrete, including site manager example entry. Intended to be taken in conjunction with CON205 and CON206.	Upon completion of the course the participant will be able to: 1. Discuss volumetric properties of aggregates, cement, fly ash and the concrete mixture; 2. Discuss the specification requirements for mix design, including minimum strength, maximum water-cement ration, maximum cement content, pozzolan substitution rates, air entrainment and slump; 3. Explain how to calculate an overdesign value and apply it to a mix design; 4. Perform a mix design manually and with the aid of the "Concrete Mix Design and Control Workbook" developed by TxDOT; 5. Explain the testing requirements of trial batches; 6. Explain the requirements of Item 421 with regard to calibration of plants and trucks; and 7. Explain the specification requirements of Item 421 for concrete delivered to a project, including temperature, time,slump, air and strength.	4
CON205	Fundamentals of Concrete 101	Provides an introduction on the material qualities of fresh and hardened concrete, ideal placement, consolidation, finishing and curing techniques, specification requirements, and concrete production and delivery operations.	Upon completion of the course the participant will be able to: 1. Explain the basic principles of cement hydration. 2. Discuss the role of pozzolans in concrete. 3. Describe the effects of water content on concrete properties. 4. Identify concrete properties important for constructability. 5. Identify concrete properties important for durability. 6. Explain the role of chemical admixtures on concrete properties. 7. Explain the importance of consolidation, finishing and curing. 8. Describe Item 421 Hydraulic Cement Concrete. 9. Discuss basic operations of concrete production (materials, plant operations, delivery, etc.).	8
CON206	Concrete Materials Course	The course covers: concrete paving benefits; construction resources & tools review; pavement mix-design requirements; proper applications of various concrete pavements. Intended to be taken in conjunction with CON205.	Upon completion of this course the participant will be able to: 1. Define concrete mix design fundamentals 2. Provide an understanding of the impact of the concrete mix design on constructibility and pavement performance 3. Identify CRCP and JCP pavement 4. Identify control of the work and materials during construction 5. Explain the slipform paver 6. Identify the hot and cold weather considerations	8
CON209	Dispute Resolution	An intro course offered by the Construction Division on fundamental techniques in resolving disputes. Problem solving concepts are presented to facilitate the successful resolution of project issues encountered during the administration of a contract.	Upon completion of the course the participant will be able to: 1. Define, restate, and discuss the Laws, Rules, and TxDOT policy governing the administration of a dispute. 2. Provide early recognition of possible project issues in regards to communication problems, possible project delays, design problems and contract administration issues. 3. Distinguish between the different categorical types of disputes and the damages associated to each. 4. Apply the methods presented and improved their ability to provide fair and reasonable recommendations leading towards the resolution of disputes. 5. Increase their ability to analyze and resolve project issues at the project or contract administering office level.	12

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CON303	Bridge Deck Workshop	Covers bridge deck construction: PCP deck panels, bridge screeds, concrete placement operations, inspection & troubleshooting tips, review of projects, etc. Key info is highlighted in reference manuals & current issue of the Tx Standards Specifications.	Upon completion of the course, participants will be able to: 1. Demonstrate an understanding of bridge deck inspection; 2. Explain the requirements for bridge deck construction, the reasons behind them; 3. Identify the critical items for inspection; 4. Explain the importance of PCP deck panels for deck construction.	6
CON304	Construction Inspectors Bootcamp	This two week Inspector Development Bootcamp reviews basic TxDOT construction inspection policies and guidelines. It includes monitoring contractors to ensure work meets requirements and applicable specifications.	Upon completion of the course the participant will be able to. 1. Strive to do his/her best in performing the duties of a construction inspector to achieve the highest quality output from contractors and Agency workers for the safety and convenience of the traveling public and the health of the environment. 2. Explain the responsibilities of construction inspectors to be ethical and to uphold standards of material quality control. 3. Explain the use of a set of plans in inspection of a specific contract job. 4. Create Daily Work Records (DWRs) and assess them for accuracy and necessary detail of the information they contain. 5. Identify and use the Standards and Specifications and the function codes for each specific contract. 6. Describe the responsibilities of inspecting and approving the contractor's equipment and materials used in a contract. 7. Explain the use of department standards to judge the proper quality and specification compliance of work performed by the contractor promoting uniformity in construction contract standards statewide. 8. Inspect work zone devices, roadside sign assemblies, delineators and object markers, pavement markings and raised pavement markers for condition, proper placement, configuration and installation. 9. Explain the inspection techniques, recommendations, and item/materials specifications used in a specific contract job. 10. Identify correct responses to construction activities that impact environmental resources. 11.Locate job aids including standards, specifications, materials lists, and contacts useful to the job of a construction inspector.	64
CON305	Inspector Development Workshop	Overview of selected CON304 course modules by the District to provide knowledge to construction inspectors.	This course is customized for each District. Please contact the Construction Division for more information.	8
CON320	Construction Recordkeeper Bootcamp	Provide knowledge and resources to assist TxDOT Construction Record Keepers with the ability to maintain compliant construction records in accordance with TxDOT policies, Federal, and State Laws.	Upon completion of the course the participant will be able to: 1. Define and understand the core elements and role of TxDOT Construction Recordkeepers. 2. Implement and practice efficient and compliant construction contract recordkeeping. 3. Understand the documentation needed to support pay quantities for contract records. 4. Build confidence in maintaining project records and related process.	28
CON411	Inspect of Flexi Base & Embank	This course will introduce proper techniques for construction and inspection of embankments, flexible base and stabilized layers. Participants are required to successfully complete prerequisite CON814 Spec Book	Upon completion of the course the participant will be able to: 1. List the general duties of the inspector. 2. Identify the material properties of flexibe base and embankment. 3. Describe how material properties affect construction and performance. 4. State the importance of proper preparation of the subgrade. 5. Identify proper material delivery, stockpiling and handling techniques. 6. Describe proper placement techniques. 7. Describe proper compaction. 8. Explain field testing and acceptance. 9. Identify finishing and curing techniques. 10. Cite the related 2004 specifications on embankment, flexible base and stabilized layers. 11. Discuss the importance and agenda items of pre-paving meetings.	16

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CON501	Site Mgr Contract Admin	This course is a hands-on computer-based training in the use of SiteManager contract administration functionality involving recording and documenting installed work items, DWRs, Diaries, contractor payments and testing of materials used.	Upon completion of the course the participant will be able to: 1. Use the automated construction management system 'SiteManager'.	12
CON503	SiteManager Materials Mgtmt	This course provides comprehensive hands-on training in the use of SiteManager involving the recording and documenting of materials used and tests performed on materials used for a project.	Upon completion of this course, participant will be able to: 1. Use 'SiteManager' to research online sample and testing requirements for a material for a particular project; 2. Input material sample information; 3. Record test results for a material; 4. Access material templates and spreadsheets.	12
CON510	Intro to Construction Contract Management	This course provides tools & information to manage contractor-provided construction schedules. Topics include Scheduling: Basics & Requirements; The Critical Path Method; Updates & Controls; Project Mgmt; as well as understanding Standard Spec. Item 8.	Upon completion of the course the participant will be able to: 1. Identify the need for monitoring, updating, and controlling the schedule and its relationship to project completion and project costs; 2. Identify the types of schedule delays that are common during construction projects; 3. Understand the authority of the Receiving Agency project manager relative to maintaining the construction schedule.	6
CON511	Basic Construction Schedule Analysis	This course covers basic project scheduling and time monitoring analysis for active construction projects.	Upon completion of the course the participant will be able to: Participants shall acquire knowledge, tools and techniques for the application of Item 8 of the 2014 TxDOT Specification book monitoring and analyzing active construction scheduling, monitoring issues, understand and monitor impacts, the use of time on construction projects, knowledge for improving “on-time” performance measures and provide area offices with efficient ways for engaging/facilitating contractor challenges, best practices, provide efficient ways of engaging the contractor with regard to project prosecution and determining compensable/non-compensable delays through Time Impact Analysis.	16
CON818	Contract Administration Core Curriculum FHWA-NHI-134077	Covers basic Federal-aid requirements & FHWA policy in the October 2014 CACC manual. Participants should complete one of NHI's intro courses to FA Highway Program & MUST watch FA Essentials video before enrolling: www.fhwa.dot.gov/federal-aidessentials/.	Upon completion of the course the participant will be able to: 1. Use the Contract Administration Core Curriculum Manual (CACC) and other FHWA resources in order to answer questions regarding program-level and project-level requirements on Federal Aid (FA) projects; 2. Describe the impact program-level contract requirements have on individual FA projects; 3. Identify the contract requirements associated with administering FA projects for Federal and State entities at the pre-award, advertising and award, and post-award and constructions stages.	16
CTR099	CSD Symposium	This will be a symposium provided by Contract Services with guest speakers that will be delivered both in person and via WebEx. Numerous topics covered regarding handling and processing contracts, policies and procedures, and other related items.	Upon completion of the course the participant will be able to: 1. Understand policies and processes covered in the training	8

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CTR104	Best Value Contract at TxDOT	Covers law, terms & conditions, signature authority, ethics, planning, risk mgt, communication mgt, work scope, fee schedule & payment, solicitation, negotiation, selection, documentation, work authorizations, change mgt, invoices, eval & close-out.	Upon completion of the course the participant will be able to: 1. Identify the various roles in the contracting process and apply that knowledge to particular contracts; 2. Choose appropriate contracting vehicles based on the legal and contracting principles that apply to each contracting type; 3. Plan a professional services procurement, choose the correct type of contract, and identify and manage the risks inherent in the contracting process; 4. Design and write a scope of work that clearly identifies the work that will be done and the standard that will be applied; 5. Identify the various methods of payment, gauge their respective risks and benefits, and choose the one most suited to a particular contract; 6. Design and write a fee schedule that minimizes the risk of confusion or abuse; 7. Conduct negotiations with potential providers of professional services; 8. Develop and apply selection criteria to ensure a fair and productive competitive process in terms both of quality and of price; 9. Review contract deliverables, approve and process invoices, and manage all aspects of the provider relationship; and 10. Draft, issue, and manage work authorizations.	32
CTR105	TX Transportation Contracting	A general overview of contracting types at TxDOT and the inherent risks with each type of contract. It also addresses contract planning, procurement, scopes of work, fee schedules, contract management, contract law, contract claims, and ethics.	Upon completion of the course the participant will be able to: 1. Identify many different types of contract in common use at TxDOT. 2. Assess the strengths, vulnerabilities, and risks of each type of contract. 3. Recognize and predict the cycle of activities followed in contracting. 4. Apply basic concepts involved in contract planning, procurement, scopes of work, fee schedules, and contract management. 5. Identify when ethical issues arise in contracting. 6. Recognize how significant legal principles are applied in the contracting process.	8
CTR106	Negotiating TxDOT Contracts	How to prepare for contract negotiations, as well as, techniques to use during contract negotiations & particular contracting issues, including scopes of work, fee schedules, work schedules, competitive negotiations, disputes & change management.	Upon completion of the course, participants will be able to: 1. Assemble a negotiation team and develop positions; 2. Control the negotiation environment; 3. Conduct negotiations using a wide variety of techniques; 4. Recognize negotiation techniques used by others; 5. Engage in effective negotiations on a wide variety of contract issues.	8
CTR107	Intro to Intergovern Contracts	Guides TxDOT personnel through the intergovernmental contracting process & the fundamentals of processing interagency contracts, advance funding agreements, agreements with other state & federal entities & interlocal governments. Previously DEV406.	Upon completion of the course the participant will be able to: 1. Identify different contracting mechanisms used with various governmental entities and determine which mechanism should be used with each entity and in each circumstance. 2. Write a simple scope of work and fee schedule or budget for an intergovernmental contract. 3. Conduct a simple negotiation. 4. Administer a simple contract, including file maintenance, payment of invoices, monitoring of performance, and change management.	8
CTR108	Intro to Contr w/Priv Entities	Guides TxDOT personnel through the intergovernmental contracting process & the fundamentals of processing contracts with private entities. Previously DEV407.	Upon completion of the course the participant will be able to: 1. Recognize basic principles of contract law and apply those principles to common issues that may arise in TxDOT contracts. 2. Identify problems that arise in TxDOT contracts, explore the possible consequences of those problems, and learn ways to reduce the likelihood of contracting problems. 3. Write a simple scope of work and fee schedule for a contract with a private entity. 4. Administer a simple contract, including processing work authorizations, file maintenance, payment of invocies, monitoring of performance, and change management.	8

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CTR109	Interagency Contracts	This course will teach TxDOT personel how to analyze, prepare, and administer interagency contracts. Previously DEV409, Advanced Interagency Contracts.	Upon completion of the course the participant will be able to: 1. Distinguish circumstances in which interagency contracts may or may not be used based on the laws governing the use of these contracts. 2. Draft a scope of work and budget for an interagency contract. 3. Conduct a simple negotiation. 4. Administer an interagency contract, including issuing notices to proceed, file maintenance, payment of invocies, monitoring of performance, and change managemennt.	8
CTR110	Advance Funding Agreements	This course will teach TxDOT personnel how to analyze and prepare advanced funding agreements. Previously DEV410, Advanced Funding Agreements.	Upon completion of the course the participant will be able to: 1. Identify various types of advance funding agreements and the circumstances in which each should be used. 2. Draft a budget page for an advance funding agreement. 3. Draft a scope of work for a non-construction advance funding agreement. 4. Administer an advance funding agreement, including oversight of local performance, file maintenance, handling construction change orders, and change management.	8
CTR111	Texas Transportation Contracting	This instructor-led course provides a foundation for TxDOT Contracting, covering basic contract law, contract types, procurement methods, & general contract management functions. Required for professional & scientific services contracting staff.	Upon completion of the course the participant will be able to: 1. Locate laws the government the procurement and management of state agency contracts. 2. Identify common law contracting principles. 3. Distinguish the various types of contracts, procurements, and fee schedules used at TxDOT. 4. Recognize fundamental components of contract management and administration.	8
CTR113	Best Value Contracting-Contract Management	This course will provide a comprehensive introduction to TxDOT contract management. It covers effective contract management, introduces contract management principles and terminology, defines the contract management cycle and process.	Upon completion of this course the participant will be able to: 1. Explain contract management principles and terminology 2. Define the roles and responsibilities of TxDOT contract managers 3. Describe the importance of contract monitoring in effective contract management 4. Practice the basics of contract management and monitoring 5. Determine how to extend and modify a contract 6. Recognize and implement post-award activities 7. Recognize the contract management cycle and process 8. Recognize contract issues and practice how to address them 9. Implement TxDOT contract management processes and agency best practices 10. Utilize strategies and techniques to successfully manage a TxDOT contract	16
CTR114	Ethics in Contracting	This course provides ethics training for TxDOT employees who are involved in the contracting process. It covers conflicts of interest, sources of ethical guidance, laws and policy governing TxDOT contracting, and specific types of conflict of interest.	Upon completion of this course the participant will be able to: 1. Locate and be aware of laws and policy that govern the ethical conduct of TxDOT employees and vendors. 2. Identify specific kinds of employee conflicts of interest, and understand the proper processes for addressing them. 3. Identify specific kinds of vendor conflicts, their potential impact on TxDOT employees, and understand the proper processes for addressing them. 4. Identify internal TxDOT resources for ethical guidance and how to access them. 5. Understand the potential consequences of violating ethics laws and policy.	3

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CTR616	Consultant Error & Omission	Covers the steps in identifying an error or omission, responsibility for additional costs, how to process change orders correctly ,the use of correct reason codes & the understanding of the entire process. Previously DES616 Consultant Error & Omission.	Upon completion of the course the participant will be able to: 1. Demonstrate an understanding of the Consultant Errors & Omission Correction and Collection procedures and policy. 2. Determine if an error or omission has occurred. 3. Identify the necessary steps for determining the "best" solution to an error or omission. 4. Determine that a design plan was "complete" and "correct" on bid day. 5. Measure the impact a change order has on a project, such as mitigating delays. 6. Identify the basis for additional costs to TxDOT to be pursued for reimbursement. 7. Differentiate between Consultant Liability and Total Liability on an error or omission. 8. Analyze communications and timing of the error or omission submittal. 9. Select the correct Change Order code by recognizing the perspectives of all relevant parties and receiving consensus on the code within TxDOT. 10. Recognize the importance of fair and consistent implementation of the procedures.	16
CTR620	PEPS Consultant Selection	This course will cover the consultant selection process for PEPS contracts. Topics include: background and overview of laws and procedures; responsibilities of a consultant selection team; understanding the PEPS consultant selection process.	Upon completion of the course the participant will be able to: 1. Understand the applicable laws, regulations, and overview of PEPS contracting 2. Understand the roles and responsibilities of being on a consultant selection team 3. Prepare for federal and non-federal solicitations 4. Evaluate consultant responses and interviews 5. Conduct consultant interviews 6. Understand the consultant debrief process	12
CTR621	PEPS Contract Negotiations	This course will cover the negotiation process for PEPS contracts. Topics include: background and overview of laws and procedures; payment types; negotiable components of a PEPS contract; negotiation procedures for PEPS contracts.	Upon completion of the course the participant will be able to: 1. Understand the applicable laws, regulations, and overview of PEPS contracting 2. Understand the various payment types and applicable use of each type 3. Prepare and negotiate the scope, staffing categories, overhead rates, and labor rates related to PEPS contracts	12
CTR622	PEPS Contract & Work Authorization Management	This course will cover project management of PEPS contracts and work authorizations. Topics include: overview of policies and procedures; overview of standard contracts, roles and responsibilities of a PEPS contract or work authorization project manager.	Upon completion of the course the participant will be able to: 1. Understand the applicable laws, regulations, and overview of PEPS contracting 2. Identify the key elements of a standard contract 3. Understand the work authorization assignment process 4. Understand the roles and responsibilities of a PEPS contract/work authorization manager 5. Review and approve invoices 6. Complete prime provider evaluations in PS-CAMS 7. Close out and/or terminate a PEPS contract or work authorization	16
CTR623	Managing Construction Engineering and Inspection Consultant Contracts	The purpose of this course is to increase understanding and consistent use of TxDOT policies and procedures formanagement of Construction Engineering Inspection consultant contracts and work authorizations.	Upon completion of the course the participant will be able to: 1. Understand TxDOT policies and procedures for using and managing CEI contracts through discussion and exercises on startup,delivery, and close-out best practices.	12

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DES102	Design Concepts from AASHTO	Describes key concepts and content contained in the American Association of State Highway & Transportation Officials' (AASHTO's) Policy on Geometric Design of Highways and Streets (the "Green Book"). Participants will complete an end-of-course exam.	Upon completion of the course the participant will be able to: 1. Explain how design flexibility is provided for each project type as part of the project development process. 2. Discuss basic design controls and criteria of the various functional classes and contexts for roads and streets. 3. Recognize the principal elements of design that combine to create a facility consistent with its intended function. 4. Describe the elements needed to develop a cross section. 5. Apply roadway design criteria to local roads and streets. 6. Apply roadway design criteria to urban and rural collector routes. 7. Distinguish differences between urban and rural design criteria and know when to apply them. 8. Apply roadway design criteria to freeways. 9. Recognize the types of intersections and the application of general design considerations to each intersection type. 10. Describe the various types of interchanges and understand when to apply them.	24
DES106	Freeway Design and Operations	Addresses various aspects of freeway design and operations. Introduces changes to existing freeway systems which may be necessary to accommodate future traffic demands.	Upon completion of the course the participant will be able to: 1. Explain freeway flow characteristics. 2. Identify the elements in freeway project development. 3. Describe frontage road design issues. 4. Identify interchange configurations. 5. Explain safety considerations for freeway design and operations. 6. Define the functional requirements for freeway design.	24
DES108	Urban Street Design	Focuses on the design of major urban streets. Urban collector and residential streets is included; however, the focus is the appropriate range in standards based on functional design criteria.	Upon completion of the course, participants will be able to: 1. Identify design elements of major urban streets. 2. Explain the principles for planning and designing public street systems. 3. Explain the principles of horizontal and vertical alignment for city streets. 4. Explain intersection design principles and their significance to urban street systems. 5. Describe the design of medians as a specific element in the design of urban streets.	24
DES109	Plans, Specifications and Estimates Package	Describes processes used to assemble and review project plans, specifications and estimates. Participants should be familiar with the basic operations of TxDOT's Design Construction Information System (DCIS).	Upon completion of the course, participants will be able to: 1. Explain the importance of an accurate PS&E package. 2. Describe the process of assembling a PS&E package. 3. Explain the importance of accurate entries into DCIS. 4. Identify factors that can affect unit bid prices. 5. Explain the purpose of General Notes. 6. Describe differences between a district review of the PS&E package and a division review.	16
DES110	Right-of-Way Considerations	Provides the steps involved in ROW acquisition and the impact of project design. Encourages increased coordination between designers and ROW personnel to identify potential project restraints.	Upon completion of the course the participant will be able to: 1. Discuss the impact of ROW acquisition and its legal constraints and considerations on project development and engineering/technical staff. 2. Identify and explain the importance and impact that design decisions made during TxDOT transportation projects have on the ROW acquisition process. 3. Identify state and federal laws that govern ROW acquisition and utility accommodations.	16

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DES111	Introduction to Roadway Design	Introduces roadway design engineers to the design concepts and principles necessary to develop roadway construction plans. Participants must bring a scientific calculator and straight edge.	Upon completion of the course, participants will be able to: 1. Discuss the characteristics and interrelationships between motor vehicle operators, the variety of motor vehicles and the various types of Texas roadway designs. 2. Discuss the general roadway design process. 3. Utilize the Roadway Design Manual to develop design criteria for a proposed highway improvement. 4. Discuss the importance of preparing a design summary report. 5. Identify site-specific documentation. 6. Verify documentation pertaining to the site by performing a site visit. 7. Explain the submittal and approval process for typical section designs. 8. Identify roadway alignments, including the center line alignment, curve and tangents in the design drawing. 9. Establish the beginning and end points of a vertical alignment. 10. Evaluate roadway design with respect to safety concerns. 11. Design a typical cross-section of roadway. 12. Describe the process for determining utility conflicts, side road and driveway tie-ins and surface drainage concerns. 13. Describe the major components of bridge layout drawings. 14. Describe the types of retaining walls used by TxDOT and where they are generally located. 15. Discuss the rules and regulations pertaining to storm water pollution prevention plans (SW3P) for both permanent and temporary control projects. 16. Discuss the purpose of drainage plans. 17. Discuss the purpose of Signing, Pavement Markings, Traffic Signals and Illumination plans. 18. Discuss the purpose of traffic control plans. 19. Discuss the purpose of landscape design plans. 20. Discuss the purpose of special specifications and general notes. 21. Describe the importance and key components of miscellaneous roadway design details. 22. Incorporate all pertinent design changes into the design drawing.	32
DES114	TxDOT Highway Materials Engrng	Course is designed for experienced engineering personnel who require knowledge in a broad spectrum of highway materials. The course includes demonstrations of key test procedures at the Materials and Tests section laboratory of the Construction Division.	Upon completion of the course the participant will be able to: 1. Identify and describe engineering properties of highway materials. 2. Identify and describe causes for poor performance of materials or structures. 3. Outline and define material selection criteria. 4. Describe new materials-related technologies. 5. Describe and apply field and laboratory testing and inspection procedures. 6. Describe mixture design procedures. 7. Administer QC/QA specifications.	80
DES116	Introduction to Highway Project Development	Focuses on major activities listed in the "TxDOT Project Development Process Manual". Participants must bring current "TX Standard Specifications for Construction & Maintenance of Highways, Streets & Bridges" book, scientific calculator & straight edge.	Upon completion of the course, participants will be able to: 1. Describe major processes in project development. 2. Use the online manual for project development. 3. Explain the major components of highway plans and specifications. 4. Identify major resources available for project development.	28
DES117	Highway Safety Manual (HSM) Safety Analysis (FHWA)	This three day course presents the Highway Safety Manual (HSM), Interchange Safety Analysis Tool (ISATe), and Interactive Highway Safety Design Model (IHSDM).	Upon completion of this course participants will be able to: Present the HSM Crash Prediction Methodology as outlined in the 2010 HSM and 2014 Supplement: Day 1: HSM Crash Prediction Methodology Overview and Apply HSM Spreadsheets to: *Rural Two-Lane Roads *Rural Multilane Highways *Urban-Suburban Arterials Day 2: Interchange Safety Analysis Tool enhanced (ISATe) Overview *Apply ISATe to a Freeway Section of I-70 in PA Day 3: Interactive Highway Safety Design Model (IHSDM) Overview *Apply IHSDM to a Freeway Section of I-70 in PA	24

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DES119	Preliminary Design Process	Outlines the preliminary design process of a transportation improvement project. Includes the vaious tasks and sequences required to obtain schematic approval.	Upon completion of the course the participant will be able to: 1. Review the Project Development Process Manual. 2. Discuss major project development tasks and sequence. 3. Describe a Preliminary Design Conference. 4. Identify schematic requirements and types. 5. Review the Design Summary Report (DSR). 6. Identify potential project stakeholders. 7. Discuss transportation project funding. 8. Discuss toll feasibility. 9. Review the requirements of public involvement. 10.Review horizontal alignments in accordance with design criteria. 11. Identify activities in the geometric schematic development process. 12. Identify the purpose and benefits of Value Engineering. 13. Identify the benefits and process of schematic reviews.	16
DES121	Building Roads the TxDOT Way	Provides a non-technical overview of building major highways in metropolitan areas. Introduces terminology and aspects of what designers, planners, environmental specialists, right-of-way agents, etc. consider when building roads the TxDOT way in Texas.	Upon completion of the course the participant will be able to: 1. Describe how TxDOT roads are developed from inception to construction. 2. Explain factors that impact the planning, design and construction of highways. 3. Identify terminology and acronyms common to the three levels of project authorization: PLAN, DEVELOP and CONSTRUCT. 4. Describe basic project development responsibilities of TxDOT divisions and districts. 5. Explain employees' role in the building of roads in Texas.	8
DES122	Design & Const. for Ped Acces	This course provides an update on accessible pedestrian facility design with a focus on compliance with the Americans With Disabilities Act (ADA) and the Texas Accessibility Standards (TAS). Previously known as "Designing for Pedestrian Access"	Upon completion of the course, the participant will be able to: 1. Discuss accessible design for various disabilities served and their needs. 2. Use specifications provided in the course for the design of curb ramps and landings, sidewalks, and street crossings.	6
DES123	Interactive Highway Safety Design Model FHWA-NHI-380071	This course instructs highway design project managers, planners, designers, and traffic and safety reviewers in the application of the Interactive Highway Safety Design Model (IHSDM) software and provides guidance on interpretation of the output.	Upon completion of the course, participants will be able to: 1. Describe key capabilities and limitations of IHSDM 2. Evaluate a two-lane rural highway using IHSDM 3. Recognize when and how IHSDM can be used in the project development process	16
DES124	Safety Analysis for Freeways and Interchanges FHWA	Chapters 18 and 19 of the AASHTO Highway Safety Manual (HSM) and introduces the Enhanced Interchange Safety Analysis Tool (ISATe) and Interactive Highway Safety Design Model (IHSDM) tools and their capabilities in implementation of the methods therein.	Upon completion of the course the participant will be able to: 1. Recognize how a freeway/interchange safety analysis can support decision making on project design choices 2. Apply the HSM predictive methodology to estimate expected average crash frequency for freeways and ramps 3. Apply the ISATe for assessing safety on freeways and interchanges 4. Apply the IHSDM for assessing safety on freeways and interchanges	14
DES125	Roadside Safety and Design Concepts	This course explains different types, characteristics, selection guidelines and placement recommendations for roadside barriers, medians, end treatments and crash cushions. In addition, the economic evaluation methods for roadway safety are described.	Upon completion of the course the participant will be able to: 1. Apply the clear zone concept and apply it in different roadway classes and conditions. 2. Assess the characteristics and usage of roadside barriers. 3. Locate different types of medians and their characteristics. 4. Evaluate different kinds of end treatments, crash cushions, and their characteristics. 5. Analyze medians and end treatments. 6. Describe different roadside features, especially design and location criteria for breakaway and non-breakaway supports. 7. Interpret bridge railings and transitions as well as how to select and place them.	24

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DES600	Highway Stormwater Pump Station Design FHWA-NHI-135028	Provides detailed instruction in the design & analysis of highway stormwater pump stations including guidance on location and type selection. A major portion of the course is hydraulic design procedures for sizing & optimizing pump station performance.	Upon completion of the course, participants will be able to: 1. Describe what a pump station is and where they are used; 2. Define the drainage area for a pump station and construct the resulting mass inflow curve; 3. Calculate the storage volume required for a pump station and discuss ways to acquire that volume; 4. Determine pump operational schedule and perform mass curve routing of the inflow hydrograph; 5. Calculate the size of the discharge line and select required pump size; 6. Define dimensions of the wet well and perform system evaluation; 7. Describe basic mechanical and electrical concepts important in pump station design; 8. Describe available pump station software.	8
DES601	Basic Hydrology & Hydraulics	Provides an introduction to basic hydraulic principles and techniques. Content adapted from the TxDOT Hydraulic Design Manual, FHWA HDS-02-00X and other sources. Participants must bring a scientific calculator and Engineering Scale (English units).	Upon completion of the course the participant will be able to: 1. Derive watershed parameters. 2. Derive flow rates, using hydrologic methods. 3. Discuss the concepts of the continuity equation, energy, weir and orifice. 4. Perform a simple hydraulic analysis.	24
DES602	Urban Storm Drain Design	Provides concepts and procedures of hydraulics and hydrology pertinent to the design of urban storm drains. Participants must bring a scientific calculator and engineering scale (English units). Participants will complete an end-of-course exam.	Upon completion of the course the participant will be able to: 1. Identify urban storm drain design challenges. 2. Describe components of an urban drainage system plan. 3. Determine run-off rates for storm drain design. 4. Discuss hydrologic and hydraulic methods for stormwater management. 5. Select and design locations for storm drain inlets. 6. Design layout and sizes of storm drain conduits. 7. Evaluate the hydraulic gradeline of a storm drain design. 8. Identify computer applications that would be useful.	20
DES604	Culvert Analysis and Design	Concentrates on rural & urban economic, operational & technical considerations necessary to develop proper culvert designs for roadway projects that conform with TxDOT design practices. Participants must bring a scientific calculator & engineering scale.	Upon completion of the course, participants will be able to: 1. Identify key channel, roadway and regulatory issues that impact culvert performance and design. 2. Identify key references and design analysis aids. 3. Explain channel and culvert hydraulic principles. 4. Apply analysis tools for troubleshooting. 5. Identify and incorporate key documentation requirements for reports and plans.	20
DES607	Urban Drainage Design FHWA-NHI-135027	Provides a detailed introduction to urban roadway drainage design. Design guidance for solving basic problems encountered in urban roadway drainage design is provided.	Upon completion of the course the participant will be able to: 1. Determine run-off (peak flows and volumes) from urban watersheds. 2. Apply basic hydraulic principles to urban drainage design. 3. Perform roadway drainage designs, using various roadway inlets. 4. Size and/or analyze storm drain conveyance systems. 5. Establish the energy and hydraulic grade lines for storm drains. 6. Design and/or analyze detention basins.	24
DES608	Culvert Design FHWA-NHI-135056	How to hydraulically size & design a highway culvert; topics include allowable headwater at the inlet, permissible outlet velocity, energy dissipation measures, aquatic organism passage, mechanisms of culvert failures, repair & rehabilitation options.	Upon completion of this course, the participant will be able to: 1. Justify the importance of culvert design. 2. Explain the overall culvert design process. 3. Summarize basic hydraulic concepts. 4. Discuss factors influencing hydraulic performance and design of culverts. 5. Explain how to calculate culvert outlet velocity. 6. Apply nomographs and computer methods to design a roadway culvert. 7. Design culverts that meet aquatic organism passage (AOP) requirements. 8. Assess impacts of repair and rehabilitation of culverts on hydraulic performance. 9. Design energy dissipator and debris control structures for culverts. 10. Design culverts for various situations. 11. Discuss culvert failures and how they can be prevented.	24

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DES610	Roadside Safety Systems - Roadway Designer Training	This course addresses the need for guard fence systems, terminals, and crash cushions, their performance capabilities, and the selection, design , and layout paraments that ensure an optimal installation.	Upon completion of the course the participant will be able to: 1. Explain when a traffic barrieris the "best" choice for shielding a hazardous condition; 2. Describe how different systems perform under actual crash conditions; 3. Explain how a designer selects a barrier system and designs it to fit a specific location; 4. Explain what constitutes an "optimal installation"; 5. Locate resent crash testing updates and resources to aid in design.	8
DES720	GPS Basic Data Collect-GIS Map	Provides instruction in basic GPS concepts, field data collection (1-5 m& eter accuracy), post-processing techniques & exporting collected data to a GIS. The curriculum in this course is aimed specifically at GIS applications & covers PFO v. 5.4.	Upon completion of the course the participant will be able to: 1. Explain GPS concepts; 2. Use TxDOT supported GPS hardware and software; 3. Organize information for a database; 4. Conduct mapping sessions; 5. Collect GPS data in real-time and autonomously; 6. Post-process autonomous data; 7. Create waypoints; 8. Navigate with GPS; 9. Export data to a GIS; and 10. Provide metadata for each project.	20
DES733	Survey Data Management Sys	This is a hands-on course designed to instruct students on collecting, editing and processing survey data collected in the field using a total station, digital level or automatic level with AASHTO SDMS and create a file for exporting to a CAD software.	Upon completion of the course the participant will be able to: 1. Identify software structure,settings, and tolerances; 2. Identify various surveying tasks; 3. Establish control and control files; 4. Perform various calculations; and 5. Generate alignments and stakeout reports.	32
DES734	AASHTO SDMS Training	This course features Dr. Ray Hintz, who will provide information on survey data collection and processing which TxDOT has adopted.	Upon completion of this course the participant will be able to: 1. Assist in the implementation of the SDMS Collector; 2. Assist in the implementation of the SDMS Processor.	12
DES739	ArcGIS - Arcinfo	Intro to geographic information systems (GIS) technology & the use of ArcGIS Desktop v. 10 software for mapping & analyzing spatial data. Covers principles & techniques of general GIS technology & spatial data using the ArcView module of ArcGIS.	Upon completion of the course the participant will be able to: 1. Understand general GIS principles 2. Recognize, gather, input, query, edit, analyze and display spatial data using ArcGIS 3. Work with point, line, polygon and dynamic segmentation features 4. Create new data layers 5.Utilize single-source data from TSD's enterprise geodatabases 6. Create, maintain, manage, plan, design, report and monitor GIS projects that use TxDOT data	20
DES740	GPS/RTK Survey	Global Positioning System (GPS) surveying procedures for Real Time Kinematic surveys. Covers basic theory, prep of files, parameters for data collection, equipment setup, data analysis & exporting a final product. Uses Trimble Access v. 2013.42.	Upon completion of the course the participant will be able to: 1. Use Trimble equipment for topographical and other TxDOT level 3 and 4 surveys; 2. Load necessary files into the data collector, set up the equipment and perform the survey; 3. Download the data, review and edit the data and export it to the design software.	20
DES745	ArcGIS Workshop for 4 Year Pavement Plan	Hands on workshop utilizing TxDOT data from Statewide Planning Map and ArcGIS online to create 4 Year Pavement Plan and other planning maps for their District.	Upon completion of the course the participant will be able to: 1. Create and share planning maps	20

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DES746	GNSS RTK Project Control and Data Collection	This course will provide the training needed for a user to perform basic functions using Trimble's R10 GNSS Receiver.	Upon completion of the course the participant will be able to: 1. Survey with Trimble's R10 GNSS receiver	8
DES747	Scanning Data Collection	This course provides the information needed for a user to perform basic functions using the Trimble SX10 Total Station and Scanner instrument.	Upon completion of the course the participant will be able to: 1. Survey and scan using Trimble's SX10 Total Station Instrument	8
DES748	Robotic Project Control and Data Collection	This course provides the information needed for a user to perform basic functions using the Trimble VX and S7 Total Station instruments.	Upon completion of the course the participant will be able to: 1. Survey and scan using Trimble's VX and S7 Total Station instruments.	8
DES749	Leveling with Digital Levels	This course will provide the training needed for a user to perform basic functions using Trimble's DiNi Digital Level.	Upon completion of the course the participant will be able to: 1. Run Levels with Trimble's DiNi Digital Level	8
DES799	One-Dimensional Modeling of River Encroachments with HEC-RAS FHWA-NHI-135041	Application of HEC-RAS software, developed by the Hydrologic Engineering Center of the U.S. Army Corps of Engineers. Modeling principles and techniques will be presented using the latest version of HEC-RAS.	Upon completion of the course, participants will be able to: 1. Manage HEC-RAS files. 2. Navigate the HEC-RAS windows. 3. Describe the types of hydraulic modeling situations for which one-dimensional application of HEC-RAS is appropriate. 4. Describe one-dimensional hydraulic modeling principles used in HEC-RAS including conservation of energy, mass, and momentum. 5. Build input data files for use with HEC-RAS for steady state applications with and without roadway encroachments including bridges, culverts, and multiple openings. 6. Develop one-dimensional water surface elevations and velocity estimates using the HEC-RAS computer program. 7. View and manipulate the output from the HEC-RAS computer program. 8. Evaluate hydraulic conditions using HEC-RAS modeling program through various transportation related hydraulic structures including weirs, culverts, and bridges. 9. Identify and troubleshoot modeling problems, including those indicated by errors, warnings, and notes.	24
DES800	Two-Dimensional Hydraulic Modeling of Rivers at Highway Encroachments FHWA-NHI-135095	Intro to two-dimensional modeling concepts, background data necessary to support a model, hydraulic modeling parameters, mesh development., model simulation parameters, model calibration, hydraulic structures, and reviewing two-dimensional model results.	Upon completion of the course, participants will be able to: 1. Recognize the differences between 1D and 2D hydraulic models 2. Use background data in SMS for 2D modeling projects 3. Use SMS to setup and run 2D models 4. Visualize and review 2D model results 5. Add structures to 2D models 6. Evaluate 2D hydraulic parameters for use in bridge scour analysis	24
DES803	Fracture Critical Inspection Techniques for Steel Bridges FHWA-NHI-130078	Course uses current practices, while addressing new technologies available to bridge inspectors. Features hands-on workshops for popular types of nondestructive evaluation (NDE) equipment & an inspection plan case study for a fracture critical bridge.	Upon completion of the course, participants will be able to: 1. Identify fracture critical members (FCMs) 2. Identify problematic details 3. Identify areas most susceptible to fatigue and fracture 4. Record defects 5. Evaluate defects 6. Evaluate nondestructive evaluation (NDE) methods 7. Evaluate retrofit details	28

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DES804	Safety Inspection of In-Service Bridges FHWA-NHI-130055	Based on FHWA 2012 BIRM. Must complete 1 of these before enrollment: Engr Concepts for Bridge Inspectors (NHI 130054), Intro to Safety Inspec of In-Service Bridges (NHI 130101); or Prereq Assessment for Safety Inspec of In-Service Bridges (NHI 130101A)	Upon completion of the course the participant will be able to: 1. Discuss duties and responsibilities of a bridge inspector and define inspection concepts. 2. List inspection equipment needs for various types of bridges and site conditions. 3. Describe, identify, evaluate and document various components and deficiencies that can exist on bridge components and elements. 4. List design characteristics and describe inspection methods and locations for common concrete, steel and timber structures. 5. Identify and evaluate various culvert and waterway deficiencies. 6. Discuss the need to inspect underwater portions of bridges. 7. Describe non-destructive evaluation methods for basic bridge materials. 8. Demonstrate how to field inspect and evaluate common concrete, steel and timber bridges.	80
DES805	Stream Stability and Scour at Highway Bridges FHWA-NHI-135046	This comprehensive training provides preventive techniques for identifying, analyzing, and calculating various hydraulic factors that impact bridge stability.	Upon completion of the course, participants will be able to: 1. Identify indicators of stream instability that can threaten bridges. 2. Identify stream types and their potential for instability problems. 3. Describe open-channel hydraulics concepts in bridge scour and stream instability analyses. 4. Define types of scour that can occur at bridge crossings. 5. Describe aggradation, degradation, and contraction scour. 6. Calculate contraction scour for live bed and clear water conditions. 7. Describe factors that influence scour at piers. 8. Calculate pier scour for three typical case studies. 9. Describe the factors that influence scour at abutments. 10. Describe how HEC-18, HEC-20, and HEC-23 provide analysis procedures for stream instability and bridge scour. 11. Perform Level I and II analyses. 12. Classify a stream using two different classification systems. 13. Conduct a qualitative analysis of stream responses. 14. Apply the HEC-18 scour equations to determine total scour at a bridge. 15. Determine the need for a Scour Plan of Action at a scour-critical bridge.	24
DES807	Countermeasure Design for Bridge Scour and Stream Instability FHWA-NHI-135048	Overview of countermeasures to highway related failures from effects of stream instability, scour, erosion & stream aggradation & degradation problems. Includes an intro to instrumentation for scour monitoring. Prereqs are NHI 135046, 135086 & 135087.	Upon completion of the course, participants will be able to: 1. Develop a plan of action for a scour critical bridge 2. Propose countermeasures for stream instability and scour problems 3. Identify countermeasures for bridge scour and stream instability using the HEC-23 countermeasures matrix 4. Design selected countermeasures with HEC-23 design guidelines.	20
DES808	Practical Highway Hydrology FHWA-NHI-135067	Based on HDS #2 Highway Hydrology manual, participants learn to select & implement techniques for estimating peak flows & flood hydrographs in gaged & ungaged streams for watersheds of the size typically encountered in highway drainage design.	Upon completion of the course, participants will be able to: 1. Identify which peak flow design methods are suitable for given watershed characteristics and design requirements. 2. Estimate times of concentration. 3. Apply the SCS, regression and rational methods for peak flows. 4. Analyze gage flows, using Log-Pearson III Frequency Analysis. 5. Develop hydrographs, using the unit hydrograph and other techniques. 6. Perform storage routing calculations. 7. Design a storm water management facility.	24
DES814	Stream Stability and Scour at Highway Bridges for Bridge Inspectors FHWA-NHI-135047	The course provides an understanding of and assistance in detecting hydraulic-related problems at highway bridges. The effects of steam instability, scour, erosion, and stream aggradation and degradation are covered.	Upon completion of the course participants will be able to: 1. Identify stream instability and scour problems at bridges 2. Conduct field evaluations for scour and stream instability problems and properly code the results in the National Bridge Inventory 3. Recognize countermeasures for stream instability and scour	8

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Course Code	Course Title	Description	Objectives	Duration (in hours)
DES815	Introduction to ArcGIS Online	Introduction to ArcGIS Online is a one day course that will instruct users to create and share maps. They will manage online content, groups, and create Story Maps.	Upon completion of the course the participant will be able to: 1. Students will learn how to add data to ArcGIS online from ArcGIS desktop, create maps, share maps, add content to their user page, as well as join create, and manage groups. 2. Users will also be introduced to ArcGIS Online Story Maps. 3. They will create Map Tour, Shortlist and Spyglass maps from story map templates.	8
DES816	Design of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes FHWA-NHI-132042	This Design of Mechanically Stabilized Earth Walls & Reinforced Soil Slope course covers tools & cost effective practices in the design of MSEWs using load resistance factor design (LRFD) & construction of earth retention structures.	Upon completion of the course, participants will be able to: 1. Recognize potential applications for MSEWs and RSS structures for use in transportation facilities 2. Prepare conceptual and basic (i.e., for simple geometry) designs, and be able to check contractor-submitted designs for walls and slopes 3. Examine and select appropriate material properties and parameters used in design 4. Calculate the cost of conceptual MSEWs and RSS structures and determine if construction is a cost-effective option 5. Select appropriate specification/contracting method(s) and prepare detailed specifications for materials and methods of construction 6. Define and communicate major components of construction inspection of MSEWs and RSS structures to confirm compliance with design	24
DES819	Advanced Concepts in ArcGIS De	Advanced techniques in geographic information systems (GIS) utilizing ArcGIS Desktop software for mapping and analyzing spatial data. Instruction expands on the principles and techniques covered in the Introduction to GIS - ArcView class.	Upon completion of the course the participant will be able to: 1. Symbolize features using different types of attributes 2. Appropriately use label or annotations 3. Add map elements to a layout and modify their properties 4. Identify QC checks for data quality 5. Define a coordinate system and project/transform geographic datasets 6. Manage the way tables display attribute data 7. Apply a workflow for creating and editing features 8. Interpret how the hierarchical structure of environment setting can affect your workflow 9. Use advanced geoprocessing tools and models to conduct spatial analyses	24
DES820	Hydrologic Analysis and Modeling with WMS FHWA-NHI-135080	Uses data derived from geographical info systems (GIS) to develop hydrologic estimates & model runoff from watersheds. Also uses digital terrain data for development of watershed parameters required by most commonly used hydrologic analysis programs.	Upon completion of the course, participants will be able to: 1. Automate basin delineation in WMS with GIS vector data, DEMs, and TINs. 2. Efficiently use digital watershed data for hydrologic modeling parameter development. 3. Locate and obtain digital data sources for watershed delineation and hydrologic model development. 4. Use WMS to build hydrologic input data files for use with HEC-1 (HMS), TR-20, TR-55, regional regression equations, and Rational Method programs, including instruction on how to graphically view the output.	24

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DES821	Hydraulic Design of Safe Bridges FHWA-NHI-135090	Provides participants with an intensive training on the hydraulic analysis and design of bridges. The goal is to provide information needed to safely build bridges, while optimizing costs and limiting the impact to property and the environment.	Upon completion of the course the participant will be able to: 1. Describe the ways hydraulic design affects bridge performance and public safety; 2. Describe hydraulic conditions that occur in the vicinity of bridges; 3. Identify regulatory requirements and design constraints important to bridge projects; 4. Describe the input requirements for one-dimensional models; 5. Identify conditions when one-dimensional modeling is adequate to develop accurate hydraulic results for safe bridge design; 6. Describe the effects of atypical bridge hydraulic conditions on bridge design; 7. Perform a qualitative risk assessment for a bridge replacement project. 8. Describe the properties and input requirements for two-dimensional models. 9. Distinguish conditions requiring two-dimensional modeling to develop accurate hydraulic results for safe bridge design. 10. Define the types of scour and stream instability that affect bridge design. 11. Identify how hydraulic variables are obtained from one- and two-dimensional models. 12. Assess whether a replacement bridge design alternative will have adequate hydraulic capacity to meet design criteria. 13. Distinguish conditions requiring unsteady flow modeling to develop accurate hydraulic results for safe bridge design. 14. Describe additional analyses that contribute to the hydraulic aspects of safe bridge design. 15. Determine the minimum required foundation depth based on scour conditions. 16. Assess the likelihood of a bridge project causing adverse hydraulic impacts downstream. 17. Demonstrate strategies for communicating hydraulic recommendations to various stakeholders	24
DES822	Highways in the Coastal Environment FHWA-NHI-135082	The purpose of this course is to teach important concepts and terminology of coastal science and engineering to highway engineers for use in the planning and design of coastal roads.	Upon completion of the course the participant will be able to: 1. Describe coastal engineering design issues related to highways using standard terminology with an understanding of the physical processes unique to this design environment; 2. Identify appropriate planning, analysis, and design methods for highways and bridges exposed to coastal surge and waves; 3. Describe differing levels of complexity involving coastal engineering and appropriate qualifications of engineers and coastal engineering consultants to address this complexity in design.	24
DES823	Performance Based Intersection Design and Operations FHWA	This one-day course examines key safety, design and operational considerations for roadway intersections from performance-based perspectives of various users.	Upon completion of the course the participant will be able to: 1. Identify the types of intersection conflicts and the factors that influence crash severity 2. Apply strategies that reduce the severity and frequency of intersection conflicts through geometric improvements 3. Apply strategies that reduce the severity and frequency of intersection conflicts through traffic control and operational improvements 4. Identify appropriate safety and operational performance measures for intersections 5. Apply strategies to balance the needs of different user groups at intersections 6. Define and describe the elements of an intersection control evaluation process 7. Apply strategies to select appropriate engineering countermeasures at high crash intersections 8. Describe the guiding principles for pedestrian-focused intersection designs	7

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DES830	Safety Inspection of In-Service Bridges for Professional Engineers FHWA-NHI-130056	This course intended for Professional Engineers (PEs), is based on the "Bridge Inspector's Reference Manual" (BIRM) and provides training on the safety inspection of in-service highway bridges. It has been streamlined to better suit experienced PE's.	Upon completion of the course the participant will be able to: 1. Describe the importance of bridge inspection 2. Define the fundamental bridge inspection concepts 3. Describe the basic bridge materials 4. Identify and discuss mitigation strategies for personal and public safety issues associated with bridge inspections 5. List the inspection equipment needs for various types of bridges and site conditions 6. Describe the various components of bridge inspection reporting 7. Identify, evaluate, and document the various deficiencies that can exist on bridge decks 8. List design characteristics of common concrete superstructures 9. Describe inspection methods and locations for common concrete superstructures 10. Identify and evaluate the various bridge bearing, substructure, and waterway deficiencies 11. Discuss the need to inspect underwater portions of bridges 12. Describe nondestructive evaluation methods for the three basic bridge materials 13. Demonstrate how to field inspect and evaluate a common concrete bridge 14. List design characteristics of common steel superstructures 15. Describe inspection methods and locations for common steel superstructures 16. Identify and evaluate the various culvert deficiencies 17. Demonstrate how to field inspect and evaluate a common steel bridge 18. List design characteristics of common timber superstructures	40
DES831	Interactive Highway Safety Design Model FHWA-NHI-380071	This course instructs highway design project managers, planners, designers, and traffic and safety reviewers in the application of the Interactive Highway Safety Design Model (IHSDM) software and provides guidance on interpretation of the output.	Upon completion of the course the participant will be able to: 1. Describe key capabilities and limitations of IHSDM 2. Evaluate a two-lane rural highway using IHSDM 3. Recognize when and how IHSDM can be used in the project development process	16
DEV103	Success at Work (Offered in English or Spanish)	This day and a half course provides employees with the techniques and tools to be successful in effective communication, customer service, and problem solving. Participants should be ready to learn and have fun at the same time.	Upon completion of the course the participant will be able to: 1. Identify and describe the Communication Model 2. Identify and describe the Listening Model 3. Identify communication barriers 4. Describe and apply problem-solving techniques 5. Gain an understanding of the components of quality customer service 6. Identify ways to improve customer service	12
DEV113	Myers-Briggs Type Indicator (MBTI)	This course will introduce the 16 personality types based on the work of Carl Jung, Katherine Cook Briggs, and Isabel Briggs Myers. The course will help you understand how people perceive the world and make decisions.	Upon completion of the course the participant will be able to: 1. Complete the Myers-Briggs Assessment. 2. Discuss their MBTI type. 3. Describe their preferences and the preferences of others. 4. Identify ways to use differences constructively.	4
DEV115	Practical Supervision	Provides practical tools & techniques for supervising employees. Topics include multi-generational workforce, team building, Situational Supervisor Model, GROW coaching, Performance Management Rated Factors, leadership & motivation.	Upon completion of the course the participant will be able to: 1. Identify your Supervisory skills and how to improve them. 2. Identify the differences in our multi-generational workforce. 3. Apply the principles of Situational Supervision in your supervisory duties. 4. Identify strategies to motivate employees. 5. Describe strategies to build an effective team. 6. Apply the concepts of the Four Stages of Team Development to your team. 7. Apply the concepts of the GROW coaching module to coach your team. 8. Practice developing employee responsibilities. 9. Practice documenting and rating evaluations.	20

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DEV119	Training Basics for Trainers	This course explores the fundamental skills of a trainer. Participants will learn elements of class preparation, adult learning principles, learning styles, classroom management techniques, working with group activities, and training evaluation.	Upon completion of the course the participant will be able to: 1. Identify and build upon the attributes of an effective trainer. 2. Develop strategies for handling disruptive participants. 3. Explore trainer tips, tricks, and traps. 4. Demonstrate a variety of training techniques.	20
DEV120	Training Curriculum Design	Focuses on curriculum development process flow, research, delivery methods, curriculum development plan, style guide standards, learning objectives & instructional methods. Completion is a requirement for the TxDOT Instructor Certification Program.	Upon completion of the course the participant will be able to: 1. Identify and apply design techniques using a Curriculum Development Plan; 2. Demonstrate Storyboarding techniques of the curriculum design stage; 3. Design engaging training curriculum; 4. Design a class using behavioral learning objectives which are measurable.	40
DEV121	Training Curriculum Development	Individual project-based course for developers who completed DEV120. Must complete minimum 2 of: Enhancing Writing Skills, Using PowerPoint to Develop Training Guides, Finalizing Course Materials or Developing Technical/Performance-based manuals.	Upon completion of the course the participant will be able to: 1. Improve individual writing skills with more direct and concise strategies and practice (Topic: Enhancing Writing skills); 2. Improve technical writing skills for course development (Topic: Developing Technical/performance-based manuals); 3. Develop engaging PowerPoint training guides; 4. Finalize course materials for production.	12
DEV126	Area Engineer Program	This course will provide TxDOT Area Engineers with a foundation of essential concepts. Personal mastery, team building, personnel management, project based learning and technical topics will be covered in the course.	Upon completion of the course the participant will be able to: 1. Produce a team project through collaboration in a team environment. 2. Identify general duties and responsibilities of an Area Engineer. 3. Develop and deliver an effective presentation. 4. Apply TxDOT safety, personnel management, public affairs and policies/procedures to everyday work. 5. Integrate Area Engineer best practices by networking with other Area Engineers in the state. 6.Prepare and conduct critical employee conversations.	32

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DEV127	TxDOT-AASHTO Leadership Training	This course was designed to provide grounding in fundamentals as well as more sophisticated concepts and practices in the management of transportation department operations. This course emphasizes the challenges of administering complex organizations.	Upon completion of the course the participant will be able to: 1. Apply specific techniques to sustain the performance of a high-performing team 2. Categorize his/her personality typology using a specific personality assessment instrument 3. Apply the understanding of personality inventory results to work performance situations 4. Differentiate between interpersonal and team personality dynamics 5. Describe aspects of my Leadership/Change Style Profile 6. Describe mentoring in his/her own words as distinct from supervision and coaching 7. Practice leadership skills drawn from personality typology, Leadership/Change Style profiling and mentoring 8. Describe the tenets of Listening Practices 9. Exercise Listening Practices during role-playing and other training events 10. Describe the principles of impactful presentations 11. Define what it means to say the organization has a “Culture of Accountability” 12. Describe challenges and opportunities in leading a multigenerational workforce 13. Create a team presentation about a relevant and topical policy issue accepted by senior organization leaders 14. Explain the role of creativity in decision making 15. Explain organizational culture change in his/her own words 16. Explain the Five Step Organizational Change Model 17. Explain how to lead the Seven Stages of Change Transition 18. Construct a Change Communication Plan 19. Discuss time management in the context of work-life balance 20. Explain the Eight Step Conflict Resolution Model 21. Create four Individual Implementation Plans that can be executed within the next 12 months 22. Create and deliver an impactful team presentation about a relevant and topical policy issue accepted by senior organization leaders 23. Resolve interpersonal conflict in a high performance team dynamic	64
DEV130	Connect the DOTS: Career Planning	The Connect the DOTS: Career Planning course provides participants with tools and resources that help identify professional skills and strengths. We will be exploring strategies for future career growth and development for each participant.	Upon completion of the course the participant will be able to: 1. Evaluate the direction of your professional career 2. Complete a career competencies assessment to identify career development opportunities 3. Identify past accomplishments, existing skills, and career planning tools 4. Develop a vision statement that defines what career success looks like to you 5. Locate resources for TxDOT's Career Development Program and Tuition Assistance Program	8
DEV135	Supervisor Strategies for Career Development	In this course, supervisors will develop a strategy to effectively manage their team's career development goals and expectations. They will learn how to best support their employees with their career development & practice career communication skills.	Upon completion of this course the participant will be able to: 1. Identify the career conversation responsibilities of both supervisors and employees. 2. Describe ways to support employees in their career development. 3. Acknowledge the importance of career development in the future success of TxDOT. 4. Locate relevant Career Development resources.	2
DEV136	Communicate Your Career Value	Employees will learn how to help others see their professional value. The class will discuss several types of career communication, including elevator speeches and telling success stories to highlight each individual's skills.	Upon completion of the course the participant will be able to: 1. Develop an "elevator speech" to introduce yourself comfortably in a professional setting. 2. Acknowledge how communicating your career value can help you meet career goals. 3. Locate relevant Career Development resources.	2
DEV140	Entry-Level Computer Training	This course provides a foundation on which employees can build new computer skills and navigate through TxDOT computer applications and websites (e.g. Outlook, PeopleSoft, and Crossroads). Participants will also practice typing skills.	Upon completion of the course the participant will be able to: 1. Identify basic computer terms and components 2. Complete logon and logoff procedures for TxDOT computers 3. Explore TxDOT web pages 4. Practice basic Outlook/email skills 5. Practice typing skills	8

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DEV141	Potholes: Filling in the Holes of Your Computer Knowledge	This course provides fundamental computer skills and the understanding of beneficial tools and functions for common software applications. Participants define and demonstrate skills they learn throughout the course.	Upon completion of the course the participant will be able to: 1. Identify and apply standard computer tools 2. Manage files and folders in Windows Explorer 3. Demonstrate how to capture screen shots with Snipping Tool 4. Increase confidence in computer skills	8
DEV142	Basic PowerPoint With a Twist	This basic PowerPoint course is designed for employees who desire to create, collaborate, and share ideas in dynamic, visually engaging ways. Participants use hands-on activities to enhance their computer skills.	Upon completion of the course the participant will be able to: 1. Develop a simple PowerPoint 2. Demonstrate fundamental formatting concepts 3. Strengthen a PowerPoint presentation with graphics	8
DEV151	Personal Empowerment in the Workplace	This is a two-day instructor-led course that helps employees take initiative, set goals, increase emotional intelligence, improve interpersonal communication, strengthen relationships, increase influence, while developing a personal wellness plan.	Upon completion of the course the participant will be able to: 1. Foster a sense of personal responsibility 2. Employ behaviors that create a positive workplace 3. Develop a personal purpose statement 4. Discuss the 4 pillars of wellness and adopt a goal for each 5. Discover emotional intelligence - what it is, the biological basis, and the four domains 6. Learn about the important reasons why leaders should cultivate their emotional intelligence 7. Conduct an assessment to measure their emotional intelligence skills and create an action plan	16
DEV152	Time Management Strategies	This course is designed for employees who have significant latitude in planning their time to accomplish projects/assignments. Participants will learn time management techniques and how to utilize Outlook as a time management tool.	Upon completion of the course the participant will be able to: 1. List and evaluate personal time management challenges and develop strategies to deal listed challenges 2. Separate the important from the urgent. 3. Establish high level and corresponding short-term time management plans. 4. Gain strategies for successful email and calendar management to increase productivity 5. Understand how to use the Task function in Outlook	5
DEV216	Leadership One	A 3 month course offering skills to enhance leadership strengths in leading, & strategies for building professional relationships. Course includes team building, project based learning & self-reflection. Application required. See notes & attachments.	Upon completion of the course the participant will be able to: 1. To develop the skills of motivated, emerging leaders, empowering them to address the challenges of TxDOT's ever-changing environment. 2. To enable leaders to work collaboratively through effective communication and teamwork. 3. To instill all participants with the organization's core values and mission. 4. To develop and improve leadership skills through the implementation of varied tools and techniques for personal mastery.	36
DEV219	LeadershipOne Follow Up	LeadershipOne FollowUp class is a 1 1/2 day session to include team activities, individual activities and small group activities. Throughout the session particpants will share how they are applying the information/tools received in the 3 month class.	Upon completion of the course the participant will be able to: 1. Acquire/Implement new information on effective time management skills 2. Describe effective/ineffective activities for successful teaming they have tried 3. Increase their toolbox with ideas from class participants for effective leadership, teaming	12
DEV220	Progressive Discipline (Instructor-led, in-person)	This course provides supervisors with the knowledge and skills to effectively handle poor employee performance. Course includes: a new technique for counseling employees, proper documentation, and how to initiate a disciplinary action in PeopleSoft.	Upon completion of the course the participant will be able to: 1. Evaluate their team for potential problems associated with a lack of ability. 2. List five ways to overcome performance problems associated with a lack of ability. 3. Describe options available before disciplinary action. 4. Plan a counseling session. 5. Use the Painless Performance improvement model to address performance issues. 6. Document the counseling and discipline process correctly. 7. Describe the types of disciplinary actions.	8

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DEV220	Progressive Discipline (Virtual Instructor-Led Training	This course provides supervisors with the knowledge and skills to effectively handle poor employee performance. Course includes: a new technique for counseling employees, proper documentation, and how to initiate a disciplinary action in PeopleSoft.	Upon completion of the course participants will be able to: 1. Evaluate their team for potential performance problems 2. List five ways to overcome performance problems associated with a lack of ability 3. Describe options available before disciplinary action 4. Plan a counseling session. 5. Use the Painless Performance Improvement model to address performance issues 6. Document the counseling and discipline process correctly 7. Describe the types of disciplinary actions	4
DEV227	TxDOT-AASHTO Leadership Follow-Up Training	TxDOT-AASHTO Leadership Follow-Up Training - by intitation only.	Reserved for participants who have completed DEV127. By invitation only.	24
DEV234	Workplace Inclusion (previously Generational Diversity)	This course is offered to all employees to bring awareness to diversity and generational differences, and the importance of inclusion in the workplace. The learning material is designed to help improve communication and team work.	Upon completion of the course the participant will be able to: 1. Define what diversity is. 2. Identify diversity categories other than race and gender. 3. Describe the importance of a diverse workplace and inclusion. 4. Understand what defines a generation. 5. Identify characteristics and gain a better understanding of the five generations. 6. Challenge unproductive beliefs and stereotypes. 7. Explain the value of each employee's contribution. 8. Gain a deeper understanding of generational diversity.	8
DEV240	Recruiting and Hiring (also available in virtual instructor-led teaching style; no travel required)	Course provides hiring managers and designees with the policies, procedures and best practices associated with screening, interviewing and hiring the best candidate.	Upon completion of the course the participant will be able to: 1. Identify and discuss current HR policy for recruiting, screening, interviewing, and onboarding. 2. Develop job-related, legally-defensible interview questions. 3. Identify the benefits and limitations of a job simulation and interview panel. 4. Screen applications for job-related education, experience, and competencies. 5. Conduct an effective interview. 6. Apply the Standard Rating Criteria for scoring interview questions. 7. Discuss requirements for onboarding new employees’ performance expectations.	8
DEV240	Recruiting and Hiring (Virtual Instructor-Led Training)	This Virtual Instructor-Led Training course provides Hiring Managers and designees with the policies and procedures and best practices associated with screening, interviewing, and hiring the best candidate.	Upon completion of the course the participant will be able to: 1. Identify and discuss current HR policy for recruiting, screening, interviewing, and onboarding. 2. Develop job-related, legally-defensible interview questions. 3. Identify the benefits and limitations of a job simulation and interview panel. 4. Screen applications for job-related education, experience, and competencies. 5. Conduct an effective interview. 6. Apply the Standard Rating Criteria for scoring interview questions. 7. Discuss requirements for onboarding new employees’ performance expectations.	6
DEV246	PEPS LEAD Program	Invitation required. An 8 month program designed specifically to develop the skills of emerging leaders and provide necessary tools for success in the PEPS division.	Upon completion of the course the participant will be able to: 1. Develop interpersonal communication skills for today's leaders 2. Apply communication styles of effective leadership 3. Influence others 4. Prepare and conduct courageous conversations 5. Apply time management and planning methods to improve quality of work produced by self and team members 6. Solve business problems 7. Lead effective meetings 8. Understand change management 9. Enhance collaborative teamwork	64

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DEV261	Sub Abuse - Commercial Drivers	This course provides commercial drivers with essential information regarding the unique requirements for commercial drivers under the department's substance abuse policy.	Upon completion of the course the participant will be able to: 1. Explain the reason they are subject to drug and alcohol testing. 2. List and describe the types of testing they are subject to. 3. List the types of substance they will be tested for. 4. Describe drug and alcohol testing procedures. 5. Identify the consequences of positive test results. 6. Describe the mandatory referral process. 7. List the additional prohibitions commercial drivers are subject to. 8. List the reasons commercial drivers can be terminated under this policy.	1
DEV262	Sub Abuse - Safety Sensitive	This course provides employees in safety sensitive positions with essential information regarding the unique requirements for safety sensitive employees under the department's substance abuse policy.	Upon completion of the course, participants will be able to: 1. Explain the reason they're subject to drug and alcohol testing. 2. List and describe the types of testing they are subject to. 3. List the types of substances they will be tested for. 4. Describe drug and alcohol testing procedures. 5. Identify the consequences of positive test results. 6. Decribe the mandatory referral process. 7. List the additional prohibitions safety sensitive employees are subject to. 8. List the reasons safety sensitive employees can be terminated under this policy.	1
DEV263	Sub Abuse - Crew Members	This course provides ferry vessel crewmembers with essential information regarding the unique requirements for crewmembers under the department's substance abuse policy.	Upon completion of the course the participant will be able to: 1. Explain the reason they are subject to drug and alcohol testing. 2. List and describe the types of testing they are subject to. 3. List the types of substance they will be tested for. 4. Describe drug and alcohol testing procedures. 5. Identify the consequences of positive test results. 6. Describe the mandatory referral process. 7. List the additional prohibitions that crewmembers are subject to. 8. List the reasons crew members could be terminated under this policy.	1
DEV266	Substance Abuse - SCOs	Provides an overview of the TxDOT substance abuse program to Substance Control Officers (SCOs) with recent changes to the program, policy & procedures and particular emphasis on reasonable cause testing requirements.	Upon completion of the course the participant will be able to: 1. Provide an overview of the substance abuse program and available resources. 2. List the five employee types covered by the substance abuse policy. 3. Describe the prohibitions and administrative/disciplinary actions for each employee type. 4. Identify steps of the mandatory referral process and mandatory referral requirements. 5. Describe reasons for termination under this policy and discuss the termination process. 6. Explain the role and responsibilities of the Employee Assistance Program (EAP). 7. Access and complete the required substance abuse program forms. 8. Make post-accident determinations using the Post-Accident Determination Checklist. 9. Recognize the signs and symptoms of drug and alcohol abuse. 10. Confront employees and document incidences regarding substance abuse. 11. Document reasonable cause issues using the Indicators of Drug/Alcohol Use forms and Reasonable Cause Determination Checklist. 12. Conduct supervisor substance abuse training in their respective districts, divisions or offices.	8

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DEV267	Substance Abuse - Supervisors	Provides supervisors with an overview of the dept substance abuse program, information regarding recent changes to the dept substance abuse policy/procedures, with emphasis on reasonable cause testing requirements.	Upon completion of the course the participant will be able to: 1. Provide an overview of the substance abuse program and available resources. 2. Describe the prohibitions and administrative/disciplinary actions for each of the five employee types. 3. Identify steps of the mandatory referral process and mandatory referral requirements. 4. Describe recent changes to the department's substance abuse policy. 5. Describe reasons for termination under this policy and discuss the termination process. 6. Explain the role and responsibilities of the Employee Assistance Program (EAP). 7. Recognize the signs and symptoms of drug and alcohol abuse. 8. Confront employees and document incidences regarding substance abuse. 9. Document reasonable cause issues using the Indicators of Drug/Alcohol Use Forms. 10. Make reasonable cause testing recommendations, in conjuction with Substance Control Officers (SCOs).	4
DEV280	Workplace Violence - VPMs	This course provides Violence Program Managers (VPMs) with important information about the department's program and policy on violence in the workplace and educates participants on their roles and responsibilities as VPMs.	Upon completion of the course the participant will be able to: 1. Provide an overview of the violence program and available resources. 2. List and describe the four categories of violence. 3. Describe the prohibited behaviors and administrative/disciplinary actions required for each. 4. Discuss the steps in the mandatory referral process and mandatory referral requirements. 5. Describe reasons for termination under this policy and discuss the termination process. 6. Explain the role and responsibilities of the Employee Assistance Program (EAP). 7. Discuss domestic violence as it pertains to the workplace. 8. Describe reporting responsibilities associated with the violence program. 9. Discuss immediate response procedures and investigation procedures. 10. Recognize the early warning signs of potentially violent or aggressive employees. 11. Access and complete the required violence program forms. 12. Conduct Violence Awareness Training for Supervisor/Managers in their respective districts, divisions, or offices.	4
DEV300	Enhancing Your Presentation Skills	This course provides many opportunities for participants to present a specified topic in a safe, fun, and interactive learning environment.	Upon completion of the course the participant will be able to: 1. Identify personal delivery strengths and opportunities for improvement. 2. Identify key components for effective presentation delivery 3. Develop a presentation outline 4. Select appropriate learning goals and focus points 5. Develop and use effective presentation aids.	16
DEV317	FSCM Intro to PSoft Contracts	This course involves active engagement from participants and uses a hands-on learning approach. Participants will learn how to use practical applications, explain and illustrate processes, transactions, and principles.	Upon completion of the course the participant will be able to: 1. Understand important processes, transactions, and principles 2. Increase confidence in PeopleSoft skills	8
DEV373	Silo Busting	Employees will learn what a “silo” is and how silos affect the day-to-day operations within TxDOT. Staff will also gain a deeper understanding of how to go about breaking down silos within TxDOT through communication skills and team building.	Upon completion of the course the participant will be able to: 1. Define the term silo as it relates to TxDOT and distinguish negative silos from natural silos in the workplace 2. Identify and address the negative silos impacting their own work function 3. Build a sense of camaraderie across the department through team building activities	2

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DEV375	Flexible Work Execution	Participants will gain a deeper understanding of the expectations for TxDOT employees utilizing flexible work strategies. Staff will develop techniques and strategies to thrive in their work environment and navigate potential challenges.	Upon completion of the course the participant will be able to: 1. Understand how to navigate potential challenges related to their persona's respective flexible work strategies. 2. Use the flexible work strategies resources to solve potential challenges with flexible work strategies in their divisions. 3. Adopt the skills aligned to their persona when using any of the four flexible work strategies.	2
DEV376	Customer Service in a Flexible Work Strategies	All employees will take part in this three-hour course in order to learn the skills and techniques necessary to offer exceptional customer service in a flexible work environment.	Upon completion of the course the participant will be able to: 1. Articulate the meaning of quality customer service at TxDOT 2. Identify quality customer service and poor customer service when working with internal or external customers 3. Solve customer service issues that may arise when implementing any of the flexible work strategies at TxDOT	3
DEV378	Performance Management in a Flexible Work Environment	This course will help supervisors set performance metric and manage staff in a flexible work environment. Leaders will learn how to track employees success within a flexible work environment and gain the communication skills to deal with challenges.	Upon completion of the course the participant will be able to: 1. Explain their role as performance managers 2. Learn to create effective performance management metrics in order to gauge employee interaction and success within a flexible work environment 3. Learn to communicate and set expectations in a flexible work environment 4. Plan and facilitate successful performance management check-in meetings with employees virtually	3
DEV415	Introduction to Project Management	Serves as an introduction and overview of project management. Based on the Project Management Institute (PMI) and the book, The Fast Forward MBA in Project Management.	Upon completion of the course the participant will be able to: 1. Explain key project management terms and techniques. 2. Identify project stakeholders. 3. Describe a project charter and project management plan. 4. Develop a work breakdown structure and manage project scope. 5. Identify basic steps to build a project schedule and cost baseline. 6. Describe key concepts for developing and managing a high-performing project team. 7. Control a project. 8. Close a project.	16
DEV417	Project Management - Risk Assessment	Presents the processes, tools and techniques needed to effectively manage risks on TxDOT projects. Based on the Project Management Institute (PMI) standards, as defined by the Guide to the Project Management Book of Knowledge (PMBOK).	Upon completion of the course the participant will be able to: 1. Discuss common risk management terminology. 2. Describe and consistently execute the six steps in the risk management process. 3. Develop a plan for managing project risks. 4. Utilize a variety of techniques for gathering and assessing risk information. 5. Assess risks to determine which are "big" risks. 6. Develop responses to improve the potential for project success. 7. Incorporate risk management into the lifecycle of a project. 8. Foster the development of best practices.	24
DEV418	Project Management - Resource Management	Provides project management concepts related to the management of project resources. Based on the Project Management Institute (PMI) standard, as presented in the Guide to the Project Management Body of Knowledge (PMBOK) and TxDOT-specific applications.	Upon completion of the course the participant will be able to: 1. Identify and define required project resources. 2. Estimate resources for scheduling and budgeting purposes. 3. Develop a project cost baseline and cash flow. 4. Create a Resource Management Plan document. 5. Manage and control project resources effectively.	24

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DEV419	Project Management - Scheduling	Presents processes required to create and manage a project schedule. Based on the Project Management Institute (PMI) standards, as presented in the Guide to the Project Management Body of Knowledge (PMBOK) and TxDOT-specific information.	Upon completion of the course the participant will be able to: 1. Decompose a project scope to identify all required activities and resources. 2. Estimate resources and task duration. 3. Analyze network diagrams and task dependencies to determine a project's critical path. 4. Develop a realistic resource-loaded schedule. 5. Monitor and control the schedule throughout a project.	24
ENV103	Storm Water Pollu Prevent Plan	An on-site inspection of field installed storm water erosion & sediment control best management practices (BMPs). Including associated documentation in compliance with Texas Pollution Discharge Elimination System's requirements.	Upon completion of the course the participant will be able to: 1. Identify effective Storm Water BMPs and explain if they are performing as designed. 2. Update the SWP3 layout with revised BMPs. 3. Utilize inspection related tips to improve efficiency. 4. Demonstrate what to look for as an inspector. 5. Explain what actions are necessary to maintain compliance with the TPDES CGP. 6. Identify common installation mistakes and repair methods. 7. List the records necessary to maintain permit compliance.	8
ENV104	Legal Sufficiency	This workshop will focus on the process and legal standards required to provide legal sufficiency for environmental documents. These standards will be part of the review of Environmental Assessments and Environmental Impact Statements.	Upon completion of the course the participant will be able to: 1. How to review environmental documents in compliance with NEPA. 2. Ability to act on behalf of FHWA when addressing environmental legal issues. 3. Determining what documentation is required in the Administrative Record.	2
ENV106	TPWD and TCEQ MOUs Compliance	This course is designed to provide a basic overview of the MOUs that TxDOT has with TPWD and the TCEQ. This course will also provide guidance on the project file documentation standards required for compliance with these MOUs.	Upon completion of the course the participant will be able to: 1. Increase the accuracy of tracking timelines related to Agency Coordination. 2. Reduce errors related to Bio/Water documentation in the ECOS project file. 3. Reduce the number of Tier II audits required for information related to the Bio/Water standards.	5
ENV107	Indirect/Cumulative Impacts	This interactive workshop will provide Texas participants with an overview of the requirements for Indirect Effects and Cumulative Impact Analysis (ICI) and how these requirements can be efficiently addressed in the NEPA process.	Upon completion of the course the participant will be able to: 1. Determine when ICI applies. 2. Outline the ICI process. 3. Define and explain key components of ICI. 4. Assess ICI impacts under NEPA..	16
ENV108	Air Quality 101 - Attainment areas with low traffic volumes	This training provides air quality compliance requirements for highway transportation projects. It includes identifying where to locate and how to use appropriate air quality toolkit guidance. Training is specific to low traffic volume districts.	Upon completion of the course the participant will be able to: 1. Explain air quality compliance requirements for highway projects; 2. Locate the air quality toolkit guidance; 3. Use the toolkit guidance documents appropriately.	8
ENV109	Air Quality 101 - Attainment areas with high traffic volumes	AQ compliance requirements for highway transportation projects. Includes process for CO, TAQA, and MSAT analysis. Also learn about AQ toolkit. Specific to attainment Districts with relatively high traffic volumes (>140,000 vehicles per day).	Upon completion of the course the participant will be able to: 1. Explain air quality compliance requirements for roadway projects. 2. Explain the goal of the various NEPA air quality analyses. 3. Identify the compliance, coordination, and documentation requirements for the various NEPA air quality analyses. 4. Locate the air quality toolkit guidance. 5. Explain the structure of the toolkit-guidance-documents and how to use them appropriately.	4

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ENV110	Section 7 - ESA and Interagency Cooperation	The workshop will provide an in-depth overview of the Endangered Species Act Section 7 consultation requirements for highway projects with emphasis on lead agency role and legal responsibilities. Compliance issues will be reviewed through case studies.	Upon completion of the course the participant will be able to: 1. Explain the key sections of the ESA Section 7. 2. Describe the roles and responsibilities under Section 7. 3. Outline the Section 7 consultation process.	16
ENV111	Section 7 - ESA and Interagency Cooperation	AQ compliance requirements for highway transportation projects. Includes process for project level conformity determinations, hot-spots, CO TAQA, MSAT analyses, and CMP. Learn to use AQ toolkit. Specific to non-attainment and maintenance Districts.	Upon completion of the course the participant will be able to: 1. Explain air quality compliance requirements for roadway projects; 2. Explain the goal of the various air quality analyses; 3. Identify the compliance, coordination, and documentation requirements for the various air quality analyses; 4. Locate the air quality toolkit guidance; 5. Explain the structure of the toolkit-guidance-documents and how to use them appropriately.	8
ENV112	Appropriate Public Involvement	The class will prepare staff to develop an effective public involvement program and how to better conduct public involvement efforts for transportation projects	Upon completion of the course the participant will be able to: 1. Explain the benefits of active, outreaching public involvement; 2. Describe the laws, regulations, policies and procedures; 3. Plan, organize and conduct effective public involvement efforts; and 4. Prepare accurate and appropriate documentation.	16
ENV113	NEPA/ Transportation Decision Making	Participants will get a better perspective of the vital role NEPA plays in the FHWA Project Development process. It has a brief legislative and regulatory history of NEPA and an overview of related laws that fall under NEPA.	Upon completion of the course the participant will be able to: 1. Explian the relationship of NEPA to 23 CFR 771 and other environmental laws. 2. Describe the role and responsibilities under NEPA assignment. 3. Identify ways to streamline the NEPA process.	16
ENV114	Hazardous Materials in Project Development	The course will prepare staff to conduct more effective initial site assessments for hazardous materials issues relating to transportation projects and to prepare the appropriate documentation of the findings.	Upon completion of the course the participant will be able to: 1. Describe the role of hazardous materials management in project development; 2. Explain the laws, regulations, policies and procedures related to hazardous materials management; 3. Plan, organize and conduct initial site assessments for hazardous materials; and 4. Prepare accurate documentation on hazardous materials management and initial site assessments.	20
ENV115	Highway Traffic Noise Analysis	The course will prepare staff to accomplish noise analysis utilizing the TNM 2.5 software and document highway traffic noise analyses for transportation improvement projects. Students should have some familiarity with GIS and CAD applications.	Upon completion of the course the participant will be able to: 1. Describe TxDOT's Guidelines for Analysis and Abatement of Highway Traffic Noise; 2. Explain the procedures necessary to plan, set up, and conduct a traffic noise analysis; 3. Use a sound meter and the FHWA traffic noise modeling software to determine traffic noise levels. 4. Document the results of a traffic noise analysis.	24
ENV117	CRM Basics for Transportation Projects	The course emphasizes practical skills for ensuring that cultural resources issues are properly addressed during project development.	Upon completion of the course the participant will be able to: 1. Determine whether the project requires review and coordination. 2. Identify initial data needs and scheduling considerations that require review and coordination 3. Explain the roles and responsibilities of district, archeologist, and historians during review and coordination 4. Determine how to manage the big issues. 5. Identify which items belong in the project file when the project has been successfully completed. 6. Prepare proper documentation in an EA or EIS 7. Handle design changes 8. Handle commitments, including ROE denials.	24

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ENV120	Introduction to ArcGIS for ENV700	This is a two day course covering Geographic Information Systems (GIS). Two days will include an introduction to geographic information systems technology and the use of ArcGIS software for mapping and analyzing spatial data.	Upon completion of the course the participant will be able to: 1. Understand general GIS principles. 2. Recognize, gather, input, query, edit, analyze,and display spatial data using ArcGIS.	16
ENV121	USACE Section 404/10	Introduction to identifying wetlands and assessing their function/values, types of authorization (nationwide/regional/individual permits), the permitting process, and requirements the Clean Water Act Section 404 and Rivers and Harbors Act Section 10.	Upon completion of the course the participant will be able to: 1. Understand ways to identify wetlands and assess their function and value. 2. Identify and understand the differences between the types of authorizations required for wetland impacts. 3. Understand the requirements and permitting process for Section 404 of the Clean Water Act. 4. Understand the requirements and permitting process Section 10 of the Rivers and Harbors Act.	12
ENV122	Managing Road Impacts on Stream Ecosystems FHWA-NHI-142048	Managing Road Impacts on Stream Ecosystems: introduction to the basic concepts related to the impacts that roadways have on streams and stream ecosystems. Includes how to identify, monitor, avoid & mitigate the effects of these impacts.	Upon completion of the course, participants will be able to: 1. Evaluate how roads interact with and impact stream ecosystems 2. List major State and Federal Requirements that apply to roadway impacts on stream ecosystems 3. Identify relevant stakeholders 4. Involve stakeholders in an environmental review process 5. Describe the benefits of collaboration among disciplines in assessing and mitigating road impacts to stream ecosystems 6. Describe the characteristics and functions of a stream ecosystem 7. Identify stream restoration tools and techniques 8. Develop monitoring protocols 9. Identify risk and uncertainty associated with treatment approaches in fluvial environments	24
ENV124	Advanced NEPA Considerations in Project Development	Managing Road Impacts on Stream Ecosystems: introduction to the basic concepts related to the impacts that roadways have on streams and stream ecosystems. Includes how to identify, monitor, avoid & mitigate the effects of these impacts.	Upon completion of the course, participants will be able to: 1. Evaluate how roads interact with and impact stream ecosystems 2. List major State and Federal Requirements that apply to roadway impacts on stream ecosystems 3. Identify relevant stakeholders 4. Involve stakeholders in an environmental review process 5. Describe the benefits of collaboration among disciplines in assessing and mitigating road impacts to stream ecosystems 6. Describe the characteristics and functions of a stream ecosystem 7. Identify stream restoration tools and techniques 8. Develop monitoring protocols 9. Identify risk and uncertainty associated with treatment approaches in fluvial environments	16
ENV125	Traffic Noise Basics	This course will cover the basics of acoustics and the traffic noise analysis process.	Upon completion of the course the participant will be able to: Understand the basics of acoustics, learn the basic regulatory requirements and guidelines for traffic noise, be able to interpret noise documentation, and understand the public involvement requirements.	4
ENV200	Negotiation Skills for Project Delivery	This workshop is designed to support TxDOT employees' successful delivery by strengthening their interpersonal communications skills, introducing the application of effective negotiation principles, practices, and managing interpersonal conflict.	Upon completion of this course the participant will be able to: 1.Learn and apply strategies to adapt personal behavior to work more effectively with others. 2. Apply principles of negotiating with POISE (People, Options, Standards and Extras) to difficult project delivery scenarios. 3. Properly prepare for negotiation. 4. Apply effective methods and skills to resolve conflict.	12

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ENV204	NRM Regional Field Course	The course will provide participants with the knowledge and skills needed to describe natural communities and characterize the impacts of transportation projects on threatened/endangered species' habitats, wetlands, streams, and other natural resources.	Upon completion of the course the participant will be able to: 1. Identify common upland and wetland plants found in their region 2. Identify and describe vegetative communities characteristic to their region 3. Identify and describe habitats for threatened/endangered species found in their region 4. Understand how to delineate wetlands/streams for purposes of USACE Section 404 permitting 5. Understand how to perform functional assessments of wetlands/streams for purposes of USACE Section 404 permitting	18
ENV207	Environmental Basics	The workshop will provide participants with a comprehensive overview of the general NEPA process for newly hired District environmental staff. This overview includes a hands-on demonstration of how tasks need to be performed in ECOS.	Upon the completion of this course, participants will be able to: 1. Discuss typical TxDOT terminology 2. Describe the CE process 3. Define the Core Team concept 4. Perform applicable ECOS steps 5. Define TxDOT NEPA Assignment	8
ENV209	Advanced CRM Seminar	This class prepares the participant for requirements of the NEPA Assignment MOU with FHWA regarding Section 1 06/4(f) regulations. It specifically addresses strategies to integrate CRM issues into standard NEPA consultation and planning efforts.	Upon completion of the course the participant will be able to: 1. Articulate cultural resource management regulatory basics; 2. Address situations that cause project delays; 3. Identify mitigation measures; 4. Communicate effectively with consulting parties such as tribes and county historical commissions; 5. Coordinate with local agency project sponsors; 6. Develop action plans for implementing the above measures.	12
ENV210	Intermediate CRM Seminar	This class prepares the participant for requirements of the NEPA Assignment MOU with FHWA regarding Section 1 06/4(f) regulations. It specifically addresses strategies to integrate CRM issues into standard NEPA consultation and planning efforts.	Upon completion of the course the participant will be able to: 1. Articulate cultural resource management regulatory basics; 2. Describe situations that cause project delays, complicate project delivery goals, are often handled poorly, and are not of benefit to the outcome from internal and external perspectives; 3. Communicate effectively with consulting parties such as tribes and county historical commissions; 4. Coordinate with local agency project sponsors.	16
ENV211	ECOS Training	This class prepares users for new functions/features to the TX Environmental Compliance Oversight System (ECOS) application. It specifically trains the user how to utilize the system in efforts to capture required information for environmental projects.	Upon completion of the course the participant will be able to: 1. Navigate the system 2.Gain an understanding of the latest enhancements 3.Understand how the business rules and how to apply them to capture important information.	24
ENV301	Stormwater Erosion & Sediment Control Day 2	This course is, designed to qualify field inspectors and design personnel in the appropriate preparation, inspection and implementation of the suitable site specific erosion and sediment control techniques. The course includes storm water design technique.	Upon completion of the course the participant will be able to: 1. Recognize and apply hydrology methods including the rational method, the TP-40 method and the 90th percentile method. 2. Access and utilize the approved product list for slope and channel protection products. 3. Design effective sediment traps and basins. 4. Design an effective SWP3.	8
ENV402	Public Involvement in the Transportation Decision Making Process FHWA-NHI-142036	Public involvement is creative thinking, willingness & ability to interact openly & sensitively to the public during transportation decisionmaking. Focus is on successfully addressing the public's needs while gathering useful information.	Upon completion of the course the participant will be able to: 1. Describe U.S. DOT transportation decision making processes, including those that trigger the National Environmental Policy Act 2. Describe the relationship between public involvement and decision making 3. Develop a public involvement plan with stakeholder assistance that includes attention to non-traditional populations as an evaluation component 4. Describe interest-based problem solving and the values that underlie it 5. Identify ways to enhance public involvement plans.	24

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ENV411	Plain Language in Environmental Documents	Participants will learn how to write and edit environmental documents using Plain Language principles.	Upon completion of the course the participant will be able to: 1. Identify Plain Language principles 2. Identify errors in environmental document preparation 3. Perform exercises to show skill in using Plain Language	3
ENV413	TxDOT Environmental Overview for Engineering Staff	This course will provide staff with the overview of TxDOT environmental process, the National Environmental Policy Act (NEPA), Texas Administrative Code (TAC), FHWA NEPA assignment, public involvement activities and transp. plan consistency requirements.	Upon completion of the course the participant will be able to: 1. Discuss NEPA and TAC regulations 2. Discuss the TxDOT environmental process 3. Discuss FHWA NEPA assignments 4. Discuss applicable public involvement activities 5. Discuss transportation plan consistency requirements	6
ENV424	Hazmat ISA	This course will provide an introduction to TxDOT's Initial Site Assessment for Hazardous Materials (Hazmat ISA). The Hazmat SA provides a process for identification of potential hazardous materials issues early in project development.	Upon completion of the course the participant will be able to: 1.Better understand the TxDOT's Hazmat ISA procedures and requirements related to project development. 2.Document the results of the Hazmat ISA, including completion of the ISA Technical Report Form. 3.Increase their awareness of resources available to help in completing the Hazmat ISA, including Division assistance.	4
ENV429	TxDOT Environmental Process for Local Governments	This course will provide participants with a comprehensive overview of the TxDOT Environmental Process as prescribed in the National Environmental Policy Act (NEPA) and the Texas Administrative Code (TAC).	Upon completion of the course the participant will be able to: 1. Define the NEPA and TAC regulations 2. Describe the TxDOT Environmental Process 3. Discuss FHWA NEPA Assignment 4. Identify the Correct Compliance Path 5. Identify Consultants to Assist in Environmental Process	4
ENV458	TxDOT SWAT Visit	The purpose of the SWAT visit is to complete a comprehensive environmental compliance review of selected construction projects with a specific focus on the Construction General Permit (CGP) and EPICs identified in the environmental clearance document.	Upon completion of this course the participant will be able to: 1. Understand TxDOT's stormwater policies and procedures and how to inspect a construction site and SWP3 for compliance with those requirements. 2. Understand TxDOT's Environmental Issues, Permits, and Committments (EPICs) and understand how to inspect a construction site and documentation for compliance with those requirements. 3. Apply concepts learned during the SWAT visit to work in their District or Division in order to improve TxDOT's environmental compliance operations. 4. Develop relationships with other District and Division employees to build a communication network throughout the agency.	24
ENV471	District Environmental Quality Coordinator (DEQC) SUMMIT	This course is designed to enhance skills, competencies and knowledge of the DEQC. Course reviews related policies, procedures, guidance and skills to ensure environmental work meets requirements and applicable specifications.	Upon completion of the course the participant will be able to: 1. Understand TxDOT's DEQC role, policies and procedures and how apply to construction site for compliance. 2. Utilizing planning and communication to be success. 3. Apply concepts learned to work in the District to improve TxDOT's environmental compliance operations on projects. 4. Develop relationships with other District and Division employees to build a communication network throughout the agency.	12
ENV601	Practical Conflict Management Skills for Environmental Issues FHWA-NHI-142060	This course teaches basic conflict management skills, including interest-based negotiation, communication, facilitation skills, leadership behaviors & applying these skills in transportation decision making where there are environmental issues.	Upon completion of the course the participant will be able to: 1. Use interpersonal skills to engage productively with individuals within their agency 2. Use interpersonal skills to work productively with other agencies, organizations, Tribes, and the general public 3. Analyze agency roles and decision making processes with respect to potential conflict 4. Apply conflict management strategies to planning, project development, and project implementation 5. Apply conflict management strategies to increase the effectiveness of inter-agency and intra-agency working relationships and programmatic initiatives	24

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ENV602	Environmental Justice Analysis FHWA-NHI-142075	This course provides participants with the procedural concept, resources, and information to identify EJ populations; recognize adverse impacts; and assess how EJ applies to each stage of transportation decision making.	Upon completion of the course, participants will be able to: 1. Identify the basis and importance of EJ analysis to improving transportation decision-making processes 2. Describe how to perform an EJ analysis using the EJ analysis framework and available data sources, tools, and strategies 3. Develop an EJ analysis that ensures equitable transportation decision making during transportation planning 4. Develop an EJ analysis in the context of an environmental review to ensure compliance with EJ Executive Order 12898, DOT and FHWA EJ orders, and all other requirements relevant to the NEPA process 5. Identify emerging issues that may impact the analysis of EJ populations as part of transportation decision making	16
ENV700	Natural Diversity Database Training	Natural Diversity Database Training is a course designed to teach TxDOT staff how to use the GIS-ARCVIEW and Crystal Reports Database to research and find rare and threatened/endangered species on proposed TxDOT projects.	Upon completion of the course the participant will be able to: 1. Demonstrate usage of theGIS/ARC VIEW and Crystal Reports databases. 2. Demonstrate indepedent access of the data bases and correctly use and interpret the information provided by the data bases.	8
EPC101	Fundamentals of Engineering (FE) Exam Preparation	A 96-hour course to prepare Engineering Assistants (EAs) for the Fundamentals of Engineering (FE) examination. Required for EAs in the Engineering Assistant Career Development Program who have not achieved certification as Engineer in Training (EIT).	Upon completion of the course, participants will be able to: 1. Prepare for questions that are presented on the FE exam. 2. Calculate mathematical problems in the exam related to engineering. 3. Apply the principles of Thermodynamics, Fluid Mechanics, and Statics/Dynamics. 4. Use the fundamental principles of Chemistry, Probability and Statistics, Material Science, Engineering Economics, and Mathematics.	96
EPC102	Principles and Practice of Engineering (PE) Exam Preparation - Breadth	A 96-hour course to prepare Engineering Assistants (EAs) for the Principles of Engineering (PE) Breadth exam. Required for EAs in the Engineering Assistant Career Development Program who have not achieved licensure as a Professional Engineer.	Upon completion of the course the participant will be able to: 1. Practice sample questions that are presented on the PE Breadth exam. 2. Calculate mathematical problems in the exam related to engineering. 3. Apply the principles of Hydraulics, Stress Analysis, Water Treatment, Construction, Hydrology, Traffic, Transportation, Structures, and Geotechnical/Foundations.	96
EPC103	Principles and Practice of Engineering (PE) Exam Preparation - Depth	A 96-hour course to prepare Engineering Assistants (EAs) for the Principles and Practice of Engineering (PE) Depth exam. Required for EAs in the Engineering Assistant Career Development Program who have not achieved licensure as a Professional Engineer.	Upon completion of the course the participant will be able to: 1. Practice sample questions that are presented on the PE specialty exam. 2. Calculate mathematical problems in the exam related to engineering. 3. Apply the fundamental principles of Hydraulics, Environmental, Water Treatment, Construction, Hydraulics, Traffic, Transportation, Structures, and Geotechnical.	96
FOD100	MNT/Rpr John Deere 330 CLC Exc	The Maintenance and repair of John Deere 330CLC Excavator course is designed to provide department mechanics and shop repair coordinators with the skill sets to safely diagnose, troubleshoot, repair, and maintain the excavator.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to the JD 330CLC excavator. 2. Conduct a tecnical walk around of the JD 330CLC excavator. 3. Describe how the various components of the JD 330CLC fit into the electrical, hydraulic, power train, and engine systems. 4. Describe the schematic diagram and identify the components of the JD 330CLC excavator. 5. Conduct critical adjustments and tests of components. 6. Conduct diagnostic tests and troubleshoot mechanical, electrical, and hydraulic problems. 7. Describe and solve Diagnostic Trouble Codes. 8. Describe how to use the Jon Deere on-line service advisor program.	8

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FOD110	John Deere Pneu Tire Load-R&M	The maintenance and repair of the John Deere pneumatic tired loader course for models 444E, 544E, 544G, 544H, 544K, 624H, 644D and 644E is designed to safely diagnose, troubleshoot, repair and maintain the loader.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to JD loaders. 2. Conduct a technical walk around of JD loaders. 3. Be able to perform code retrieval from the DDU (Diagnostic Display Unit) or ADU (Advanced Display Unit) when applicable, using generic scan tools or NEXIQ scan tools to retrieve DTCs (Diagnostic Trouble Codes). 4. Be able to perform common system adjustments to the engine, powertrain, undercarriage and hydraulics via tests and adjustments to keep the loader productive. 5. Describe daily operational checkout procedures, service hour intervals and oil/coolant scans. 6. Describe and trace electrical issues for the engine, powertrain, hydraulic and various mechanical systems using schematics. 7. Describe or demonstrate the proper diagnostic tests and troubleshooting steps for the following engines and series on JD loaders: 4045- 300 series, 4045- Powertech, 6059- 300 series, 6068- Powertech and 6076- 400 series to include fuel, intake, exhaust and cooling systems. 8. Describe the proper method to diagnose, troubleshoot or repair Hydrostatic, Powershift and planetary gear powertrains and final drives. 9. Describe the proper method to diagnose, troubleshoot or repair hydraulic systems for open center, single & dual pumps, and load sensors; closed center steering systems.	8
FOD120	JD Crawler Loader - Repr/Maint	The maintenance and repair of the John Deere crawler loader course for models 455G, 555G, 655B and 655C is designed to safely diagnose, troubleshoot, repair and maintain the crawler loader.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to JD crawler loaders. 2. Conduct a technical walk around of JD crawler loader. 3. Be able to perform code retrieval from the DDU (Diagnostic Display Unit) or SSM (Sealed Switch Module) when applicable, using generic scan tools or NEXIQ scan tools to retrieve DTCs (Diagnostic Trouble Codes). 4. Be able to perform common system adjustments to the engine, powertrain, undercarriage and hydraulics via tests and adjustments to keep the crawler loader productive. 5. Describe daily operational checkout procedures, service hour intervals and oil/coolant scans. 6. Describe and trace electrical issues for the engine, powertrain, hydraulic and various mechanical systems using schematics. 7. Describe or demonstrate the proper diagnostic tests and troubleshooting steps for the following engines and series on JD crawler loaders: 4045, 300 series, 6068, 300 series, and Liebherr (4 and 6 cylinder diesel) series to include fuel, intake, exhaust and cooling systems. 8. Describe the proper method to diagnose, troubleshoot or repair Powershift (4 forward, 4 reverse), Powershift (variable speed forward and reverse) and Hydrostatic (closed loop) powertrains and final drives. 9. Describe the proper method to diagnose, troubleshoot or repair hydraulic systems for open center systems.	8
FOD130	JD Motor Grader - Repair/Maint	John Deere Motor Grader - Repair & Maintenance The maintenance and repair of the John Deere motor grader course for models 570A, 570B, 670B, 670G, 770B and 770C is designed to safely diagnose, troubleshoot, repair and maintain the motor grader.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to JD motor graders. 2. Conduct a technical walk around of JD motor graders. 3. Be able to perform code retrieval from the DDU (Diagnostic Display Unit) or SSM (Sealed Switch Module) when applicable, using generic scan tools or NEXIQ scan tools to retrieve DTCs (Diagnostic Trouble Codes). 4. Be able to perform common system adjustments to the engine, powertrain, undercarriage and hydraulics via tests and adjustments to keep the motor grader productive. 5. Describe daily operational checkout procedures, service hour intervals and oil/coolant scans. 6. Describe and trace electrical issues for the engine, powertrain, hydraulic and various mechanical systems using schematics. 7. Describe or demonstrate the proper diagnostic tests and troubleshooting steps for the following engines and series on JD motor graders: 6054, 300 series, 6059, 300 series, 6076, 400, 6081, 400 series and 690 Powertech series to include fuel, intake, exhaust and cooling systems. 8. Describe the proper method to diagnose, troubleshoot or repair Powershift (8 forward, 4 reverse and 8 forward, 8 reverse) and TCU (Transmission Control Unit) powertrains. 9. Describe the proper method to diagnose, troubleshoot or repair hydraulic systems for closed center and load sensor systems.	8

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Course Code	Course Title	Description	Objectives	Duration (in hours)
FOD140	JD Crawler Dozer - Repair/Maint	The maintenance and repair of the John Deere crawler dozer course for models 450E, 450G, 450H, 450J, 550H, 750, 750B, 850 and 850B is designed to safely diagnose, troubleshoot, repair and maintain the crawler.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to JD crawler dozers. 2. Conduct a technical walk around of JD crawler dozer. 3. Be able to perform code retrieval from the DDU (Diagnostic Display Unit) or SSM (Sealed Switch Module) when applicable, using generic scan tools or NEXIQ scan tools to retrieve DTCs (Diagnostic Trouble Codes). 4. Be able to perform common system adjustments to the engine, powertrain, undercarriage and hydraulics via tests and adjustments to keep the crawler dozer productive. 5. Describe daily operational checkout procedures, service hour intervals and oil/coolant scans. 6. Describe and trace electrical issues for the engine, powertrain, hydraulic and various mechanical systems using schematics. 7. Describe or demonstrate the proper diagnostic tests and troubleshooting steps for the following engines and series on JD crawler dozers: 4045-300 series, 4045T-Powertech series, 6068-300 series, 6076-400 series and 6101-500 series to include fuel, intake, exhaust and cooling systems. 8. Describe the proper method to diagnose, troubleshoot or repair HLR (Hydrostatic with High, Low and Reverse), Powershift (4 forward, 4 reverse, and torque converter) and Hydrostatic (variable speed, forward and reverse) powertrains. 9. Describe the proper method to diagnose, troubleshoot or repair hydraulic systems for open center, single and dual pump systems.	8
FOD150	JD Backhoe - Repair & Maint	John Deere Backhoe - Repair & Maintenance The maintenance and repair of the John Deere backhoe course for models 310D, 310E, 310SK, 410E, 410G, 510C and 510D is designed to safely diagnose, troubleshoot, repair and maintain the backhoe.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to JD backhoes. 2. Conduct a technical walk around of JD backhoe. 3. Be able to perform code retrieval from the DDU (Diagnostic Display Unit) or SSM (Sealed Switch Module) when applicable, using generic scan tools or NEXIQ scan tools to retrieve DTCs (Diagnostic Trouble Codes). 4. Be able to perform common system adjustments to the engine, powertrain and hydraulics via tests and adjustments to keep the backhoe productive. 5. Describe daily operational checkout procedures, service hour intervals and oil/coolant scans. 6. Describe and trace electrical issues for the engine, powertrain, hydraulic and various mechanical systems using schematics. 7. Describe or demonstrate the proper diagnostic tests and troubleshooting steps for the following engines and series on JD backhoes: 4039-300 series and 4045T-Powertech series to include fuel, intake, exhaust and cooling systems. 8. Describe the proper method to diagnose, troubleshoot or repair 4 speed synchronized with hydraulic reverser, Collar shift/synchronized with hydraulic reverser, Powershift transmission and MFWD (Mechanical Front Wheel Drive) powertrains and final drives. 9. Describe the proper method to diagnose, troubleshoot or repair hydraulic systems for open center, closed center and pressure compensated load sensor systems.	8
FOD160	JD Excavator-Repair & Maint	John Deere (JD) Excavator- Repair & Maintenance The maintenance and repair of the JD excavator course for models 120C, 260CLC, 330CLC, 490D and 490E is designed to safely diagnose, troubleshoot, repair and maintain the excavator.	Upon completion of the course the participant will be able to: 1. Be able to apply Condition Based Maintenance to JD excavators. 2. Conduct a technical walk around of the JD excavators. 3. Be able to perform code retrieval from the DDU (Diagnostic Display Unit), SSM (Sealed Switch Module) or Pump and Valve Controller (PVC) when applicable, using generic scan tools or NEXIQ scan tools to retrieve DTCs (Diagnostic Trouble Codes). 4. Be able to perform common system adjustments to the engine, powertrain, undercarriage and hydraulics via tests and adjustments to keep excavator productive. 5. Describe daily operational checkout procedures, service hour intervals and oil/coolant scans. 6. Describe and trace electrical issues for the engine, powertrain, hydraulic and various mechanical systems using schematics. 7. Describe or demonstrate the proper diagnostic tests and troubleshooting steps for the following engines and series on JD excavators: 4045-300 series, 6068-300 series, 404ST-Powertech series and 6081- Powertech series to include fuel, intake, exhaust and cooling systems. 8. Describe the proper method to diagnose, troubleshoot or repair Hydrostatic (variable-displacement, bent-axis, axial piston) powertrains. 9. Describe the proper method to diagnose, troubleshoot or repair hydraulic systems for open center; variable displacement, swash plate and open center; variable displacement, bent axis piston pump systems.	8

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FOD200	FNAV Trng for Fleet Ops Person	FNAV Training for Fleet Operations Personnel This is the introductory course for the use of the FNAV system that covers MS applications, Fuel Focus, Key Valet, and Network Fleet interfaces.	Upon completion of the course the participant will be able to: 1. Demonstrate general navigation through the Menu Bar, Button Bar, and Application Areas. 2. Demonstrate use of the various menus, home page, and button icons. 3. Demonstrate how to access and use On-Line Help and Hyperlinks in FNAV. 4. Describe how to display information in the Unit Main frame and use the List of Values search technique. 5. Describe how to reserve a pool vehicle by equipment type, motor pool location and date through the Motor Pool Portal. 6. Describe how to cancel a reservation using the Motor Pool Portal. 7. Describe how to access the Key Valet Kiosk to pick up and return a unit using the Confirmation Code. 8. Describe the process to enter a work request. 9. Describe the process to enter and complete work orders while capturing information for jobs performed, labor charges, parts charges, commercial charges and special notes 10. Describe the four work order statuses and actions required in each to complete a work order 11. Describe the basic functionality of the Inventory Management Module. 12. Describe the process to use the Unit View frame to display basic unit information and work order data. 13. Demonstrate by class exercise competency to use the FNAV system.	8
FOD210	FNAV Trng for MNT Section User	FNAV Training for MNT Section Users This is the introductory course for use of the FNAV system that covers MS applications for maintenance section based users.	Upon completion of the course the participant will be able to: 1. Demonstrate general navigation through the Menu Bar, Button Bar and Application Areas. 2. Demonstrate use of the various menus, home page and button bar icons. 3. Demonstrate how to access and use On-Line Help and Hyperlinks in FNAV. 4. Describe how to display information in the Unit Main frame and use the List of Values search technique 5. Describe the process to enter a work request. 6. Describe the process to add a work request to a work order. 7. Describe the process to enter and complete work orders while capturing information for jobs performed, labor charges, parts charges, commercial charges and special notes 8. Describe the four work order statuses and actions required in each to complete a work order. 9. Demonstrate by class exercise competency to use the FNAV system.	12
FOD220	FNAV MS for FOD equip Menchani	FNAV MS for FOD Equipment Managers. This is the introductory course for the use of the FNAV system that covers MS applications for Fleet Operations equipment mechanics.	Upon completion of the course the participant will be able to: 1. Demonstrate general navigation through the Menu Bar, Button Bar and Application Areas. 2. Demonstrate use of the various menus, home page and button bar icons. 3. Demonstrate how to access and use On-Line Help and Hyperlinks in FNAV. 4. Describe how to display information in the Unit Main frame and use the List of Values search technique. 5. Describe the process to enter a work request. 6. Describe the process to add a work request on a work order. 7. Describe the process to enter and complete work orders in Work Order Main while capturing information for jobs performed, parts charges, commercial charges, clear Telematics faults, and entering work order, job, and warranty notes. 8. Describe the four work order statuses and actions required in each to complete a work order 9. Describe the proper process for entering information in the Labor Wedge frame and correcting time entries. 10. Describe the function of Unit Queries. 11. Describe the function of Repair Information Queries. 12. Demonstrate by class exercise competency to use the FNAV system.	4

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FOD230	FNAV MS for MNT sect equip mec	FNAV MS for MNT Section Equipment Mechanics This is the introductory course for the use of the FNAV system that covers MS applications for maintenance section equipment mechanics.	Upon completion of the course the participant will be able to: 1. Demonstrate general navigation through the Menu Bar, Button Bar and Application Areas. 2. Demonstrate use of the various menus, home page and button bar icons. 3. Demonstrate how to access and use On-Line Help and Hyperlinks in FNAV. 4. Describe how to display information in the Unit Main frame and use the List of Values search technique. 5. Describe the process to enter a work request. 6. Describe the process to add a work request on a work order. 7. Describe the process to enter and complete work orders in Work Order Main while capturing information for jobs performed, labor charges, parts charges, commercial charges, clear Telematics faults, and entering work order, job, and warranty notes. 8. Describe the basic functionality of the Inventory Management Module to include request, receive, and issue parts purchased through the APS system. 9. Describe the four work order statuses and actions required in each to complete a work order. 10. Demonstrate by class exercise competency to use the FNAV system.	4
FOD240	FNAV Trainng Prevent MNT Coord	FNAV Training for Preventive MNT Coordinators (PMC) This is the introductory course for use of the FNAV system that covers MS applications for preventive maintenance coordinators.	Upon completion of the course the participant will be able to: 1. Demonstrate general navigation through the Menu Bar, Button Bar and Application Areas. 2. Demonstrate use of the various menus, home page and button bar icons. 3. Demonstrate how to access and use On-Line Help and Hyperlinks in FNAV. 4. Describe how to display information in the Unit Main frame and use the List of Values search technique. 5. Describe the process to enter a work request. 6. Describe the process to add a work request to a work order. 7. Describe the process to enter and complete work orders in Work Order Main while capturing information for jobs performed, parts charges, commercial charges, clear Telematics faults, and entering work order, job, and warranty notes. 8. Describe the four work order statuses and actions required in each to complete a work order 9. Describe the proper process for entering information in the Labor Wedge frame and correcting time entries. 10. Describe the basic functionality of the Inventory Management Module to include request, receive, and issue parts purchased through the APS system. 11. Describe the forecaster functionality in M5. 12. Describe the function of Unit Queries. 13. Describe the function of Repair Information Queries. 14. Demonstrate by class exercise competency to use the FNAV system. 15. Demonstrate the proper method to deliver effective, efficient training to FNAV users.	24
FOD250	FNAV Refresher for FNAV Users	This is a refresher course for prior attendees who completed FOD200, FOD210, FOD220 or FOD230. This is not a substitute course to gain knowledge of FNAV.	Upon completion of the course the participant will be able to: 1. Demonstrate how to open work orders in FNAV. 2. Demonstrate how to add part charges in FNAV. 3. Demonstrate how to add commercial charges in NAV. 4. Demonstrate how to enter labor charges in NAV. 5. Demonstrate how to clear diagnostic trouble codes/faults in NAV. 6. Demonstrate how to properly complete work orders in NAV. 7. Demonstrate how to close work orders in NAV. 8. Explain other functions of NAV from audience requests during the training event.	8
FOD251	Fleet Navigator (FNAV) New User Training	This course covers the basics of FNAV, from navigation to work requests and work orders.	Upon completion of the course the participant will be able to: 1. Log in to FNAV; 2. Navigate through FNAV; 3. Create Work Requests; 4. Record labor, parts, and commercial services on a Work Order; 5. Run reports and queries.	8

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FOD252	Fleet Navigator (FNAV) Super User Training	This course covers higher level functions of FNAV, as well as reviews any enhancements made to the system.	Upon completion of the course the participant will be able to: 1. Have a better understanding of more advanced functionality within FNAV. 2. Be able to build ad-hoc reports as needed. 3. Run and schedule standard reports as needed.	8
FOD260	Ad Hoc Reporting for NAV Users	This course is an intensive hands-on session for prior trained FNAV users who will be generating reports from NAV. This is not a substitute course to gain knowledge of NAV. You must be an authorized NAV user in order to attend this course.	Upon completion of the course the participant will be able to: 1. Demonstrate how to query and produce one-time reports. 2. Demonstrate how to query and produce recurring reports. 3. Demonstrate how to query and produce custom data field reports.	8
FOD270	Fleet Navigator (FNAV) v15 for FOD Office Administrators	This course is an overview of FNAV v15 as it relates to the daily operations performed by FOD Office Administrators.	Upon completion of the course the participant will be able to: 1. Log into FNAV 2. Navigate within FNAV 3. Review and perform core daily functions within FNAV v15 4. Assist other employees with motor pool reservations	4
FOD271	Fleet Navigator (FNAV) v15 for Section Mechanics	This course is an overview of FNAV v15 as it relates to the daily operations performed by District Maintenance Section Mechanics.	Upon completion of the course the participant will be able to: 1. Log into FNAV 2. Navigate with FNAV 3. Review and perform core daily functions within FNAV v15 4. Open, complete and close Work Orders in FNAV v15	4
FOD272	Fleet Navigator (FNAV) v15 for Section Administrators	This course is an overview of FNAV v15 as it relates to the daily operations performed by District Maintenance Section Adminstrators.	Upon completion of the course the participant will be able to: 1. Log into FNAV 2. Navigate within FNAV 3. Review and perform core daily functions within FNAV v15	4
FOD273	Introduction to Fleet Navigator (FNAV) v15	This course is an introduction to Fleet Navigator (FNAV version 15) and KeyValet, TxDOT system of record for fleet management and pool vehicle reservations.	Upon completion of the course the participant will be able to: 1. Log into FNAV 2. Navigate within FNAV 3. Look up a unit 4. Submit a work request 5. Log time on a work order (mechanics only) 6. Submit and cancel a pool vehicle reservation	8
FOD274	Fleet Navigator (FNAV) v15 for Fleet Mechanics	This course is an overview of FNAV v15 as it relates to the daily operations performed by FOD Mechanics..	Upon completion of the course the participant will be able to: 1. Log into FNAV 2. Navigate within FNAV 3. Review and perform core daily functions within FNAV v15 4. Open, complete and close work orders in FNAV v15	4

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FOD400	Fleet Forum	OD is please to invite non-FOD district supervisors and employees to attend this newly established program delivered in a Forum setting discussing 11 current topics revolving around Fleet systems, work processes, and best practices.	Upon completion of this forum, participants will be able to: 1. Share information on best practices for using Fleet systems and established work processes 2. Discover the latest updates to Fleet systems, equipment, and processes to apply in their district 3. Identify issues still facing the district for future conversations using Fleet Sheet and other media 4. Be able to locate job aids so District personnel can easily utilize Fleet systems to meet current performance needs related to Fleet operations to include customer-facing operations like FNAV and internal operations like tracking preventative maintenance 5. Be able to promote the use of current Fleet best practices in their district 6. Improve cooperation between Fleet Operations Division and districts with emphases in Preventive Maintenance, rental needs, and stockout reporting	8
FOD500	Network Fleet (GPS) User Training	This instructor Led Training is designed for authorized users of the departments FNAV-Finder (Network Fleet GPS Telematics) system. It is designed to enhance skills previously learned through the Network Fleet Training Center portal.	Upon completion of the course the participant will be able to: 1. Demonstrate basic navigation by groups and assets within the FNAV-Finder portal in Network Fleet. 2. Demonstrate how to setup Activity Alerts for equipment assigned to the users business group. 3. Demonstrate how to setup and generate ad hoc or recurring reports, and use applicable filters to produce desired reporting information. 4. Demonstrate how to track assets individually or in multiple groups. 5. Demonstrate how to create Geofences for section, area office, or district operations use. 6. Demonstrate how to create and manage vehicle groups. 7. Demonstrate how to use filters, attributes, and view features ot achieve desired data outputs or map views.	4
FOD600	Gradall XL Service and Repair-Basic	This course focuses on the Gradall XL series excavators on how to service, reapir and troubleshoot. Course involves hands-on diagnostics, use of the BODAS software system and schematic tracing.	Upon completion of this course the participant will be able to: 1. Demonstrate the logical steps to troubleshoot a Gradall XL series excavator. 2. Explain how a Gradall XL series hydraulic system operates. 3. Demonstrate how to adjust hydraulic pressures using pressure or digital gauges referencing hydraulic schematics. 4. Describe the various hydraulic systems found on a Gradall XL series. 5. Explain how to trace circuits on electrical schematics. 6. Explain how to trace and adjust air systems. 7. Demonstrate the proper technique and steps for boom adjustments. 8. Describe the operations and proper shutdown of Tier IV engines.	8
FOD610	Gradall XL Diagnostics & Repair - Advanced	This advanced course for FOD mechanics focuses on the Gradall XL series excavators on how to perform rapid diagnostics and repairs to electrical hydrolic and mechanical systems. Use of the Gradall BODAS diagnostics software will be used.	Upon completion of the course the participant will be able to: 1. Demonstrate the logical steps to troubleshoot a Gradall XL series excavator, 2. Perform experience based diagnostics steps to conduct rapid repairs within OEM guidelines. 3. Demonstrate how to adjust hydraulic pressures digital gauges referencing hydraulic schematics. 4. Demonstrate and perform code testing with BODAS software electrical systems. 5. Explain proper servicing of DPF and DEF systems, when and how to change filters, code testing and checking soot levels. 6. Explain hot to preform a forced regeneration.	16
FOD620	Gradall Train The Trainer for FOD Mechanics	This Train The Trainer course for FOD mechanics focuses on the Gradall XL series II, III and IV excavators and how to instruct other mechanics to perform field repairs.	Upon completion of the course the participant will be able to: 1. Instruct other mechanics on basic repairs and troubleshooting at the MNT section level or FOD shop facility. 2. Demonstrate the logical steps to troubleshoot a Gradall XL series II, III or IV excavator 3. Perform experience based diagnostics steps to conduct rapid repairs within OEM guidelines 4. Demonstrate how to adjust hydraulic pressures digital gauges referencing hydraulic schematics 5. Demonstrate and perform code testing with BODAS software on electrical systems 6. Explain proper servicing of DPF and DEE systems, when and how to change filters, code testing and checking soot levels 7. Explain how to perform a forced regeneration	24

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FOD650	Etnyre AMU FOD Mechanic/Technician Training	This course delivers extensive hands-on troubleshooting and diagnostics of the Etnyre Centennial and S2000 Asphalt Maintenance Units. This course is for FOD mechanics only. A follow-on course will be delivered concentrating on common operator issues.	Upon completion of the course the participant will be able to: 1. Describe the basic operations of the AMU 2. Demonstrate shot rate calibrations to include verifying hydraulic pump, motor sensor, speed and pump output and radar maintenance 3. Describe the proper maintenance of the spray bar and recirculating pump 4. Cite the proper service intervals and required PM actions on AMUs 5. Demonstrate the safety precautions to use when operating or working on AMUs 6. Describe the PM and troubleshooting differences for diesel and propane burners 7. Describe how to diagnose and replace common components found on AMUs 8. Demonstrate how to adjust spray nozzle angles, spray bar height, spray bar angles, igniter's and ignition coils 9. Demonstrate how to diagnose pump pressures, hydraulic valve pack for spray bar lift, shift and wing fold cylinders 10. Demonstrate how to access and read DTC codes from the CPU and use troubleshooting trees 11. Describe the functionality of pneumatic systems for valving, how to flush, service and troubleshooting issues 12. Describe how to diagnose and troubleshoot hydraulics, hydraulic solenoids and other hydraulic issues 13. Demonstrate how to troubleshooting relays and timers for lighting, thermo-coupling, temperature control and emergency shut down of the burners	16
F0D660	Etnyre FOD Mechanic Field Training	This course delivers operational hands-on troubleshooting of the Etnyre Centennial and S2000 Asphalt Maintenance Units. Familiarization with all operational components of the AMA will be covered. This course is for FOD mechanics only.	Upon completion of the course the participant will be able to: 1. Describe the basic operations of the AMU 2. Demonstrate shot rate calibrations to include verifying hydraulic pump, motor sensor, speed and pump output and radar maintenance 3. Describe the proper maintenance of the spray bar and recirculating pump 4. Demonstrate the safety precautions to use when operating or working on AMUs 5. Describe the PM and troubleshooting differences for diesel and propane burners 6. Describe how to diagnose and replace common components found on AMUs 7. Demonstrate how to adjust spray nozzle angles, spray bar height, spray bar angles, igniter's and ignition coils 8. Demonstrate how to diagnose pump pressures and correct 9. Describe the functionality of pneumatic systems for valving, how to flush and service 10. Describe how to diagnose and troubleshoot hydraulics, hydraulic solenoids and other hydraulic issues 11. Demonstrate how to troubleshooting relays and timers for lighting, thermo-coupling, temperature control and emergency shut down of the burners	8
FOD700	Bendix Air Brake Training	This course is designed to provide manufacturer-provided instructor-led air brake training, FOD mechanics and QACs shall learn theory and operation of air brake systems. Training shall include testing and hands-on exercise for participants.	Upon completion of the course the participant will be able to: 1. Properly diagnose and repair: 2. Air brake system components. 3. Truck air systems. 4. Air system Drum brakes. 5. Air system Parking brakes. 6. Air Disc brakes. 7. Anti-Lock Brake/Automatic Traction Control Systems, collision avoidance, lane departure and other safety related systems. 8. Wheel ends and wheel bearings, including symptom failure 9. Heavy Duty Truck Electronic Stability Control systems.	24
FOD800	FLEX III - Light Duty Vehicle Pre-trip Inspection	How to Perform a Proper Pre-Trip inspection for Light Duty Vehicle Operators. This course is an hour and a half long and requires an hour of inside classroom instruction and a half hour of hands-on training.	Upon completion of the course the participant will be able to: 1. Perform proper pre-trip inspection on light duty vehicles (IE, sedans, SUVs, pickup trucks)	1.5

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Course Code	Course Title	Description	Objectives	Duration (in hours)
FOD850	FLEX III - Pre Trip Preventive Maintenance	Course is delivered at the MNT section level for all equipment operators covering required the pre-trip inspections. A detailed hands-on inspection will take place on a 6 or 10 yard dump truck completing the inspection forms.	Upon completion of the course the participant will be able to: 1. Understand the importance of performing daily pre-trip inspections. 2. Understand the personal responsibilities to inspect and maintain equipment for safe operations. 3.Demonstrate the appropriate method for completing and distributing pre-trip checklists. 4.Discuss why it is important to make notes and comments on the pre-trip checklist. 5. Discuss where to find checklists in the PM Manual and eForms. 6.Demonstrate how to identify immediate corrective action needs for air brakes, tires, batteries, hydraulic, fuel and oil systems. 7. Identify what defect found on an inspection will result in an immediate "Red Tag" of the equipment. 8.Discuss how to access and use the ShopKeyPro website for specifications and quick fixes. 9. Conduct a comprehensive and correct per-trip inspection on a 6 or 10 yard dump truck.	3.5
FOD900	NEXIQ Diagnose Integrated Tool	NEXIQ Diagnostic Integrated Tool. This course provides department mechanics & shop repair coordinators with the skill sets to properly use the NEXIQ Diagnostic Integrated Tool for troubleshooting engine, brake, transmission & off-road heavy equipment.	Upon completion of this course participants will be able to: 1.Be able to launch and configure the NEXIQ Smart Launcher to begin diagnostics. 2.Demonstrate the proper methods to connect the NEXIQ laptop via USB cable, Blue-tooth, or other cables for diagnostic connections. 3.Describe the data displayed for fault codes and trip information. 4.Demonstrate the methods to connect to multiple manufacturer engine types; how to read and determine fault codes; opening and closing fault code trees; clearing and resetting fault code; opening, graphing, and using parameters for engine diagnostics; how to use special tests; how to reprogram available parameters; gathering, saving, printing, and clearing trip data. 5.Demonstrate the methods to connect to multiple manufacturer brake types; how to use fault codes; opening and troubleshooting via fault code trees; diagnose the brake system on the vehicle; open, use, and graph data list parameters; how to use special tests and diagnose brake systems. 6.Demonstrate the methods to connect to multiple manufacturer transmission types; printing information; how to use fault codes; retrieve fault codes; open fault code trees, troubleshoot,, and diagnose; open, use, and graph data list parameters; how to use special test to diagnose transmissions; how to reset adaptive parameters 7.Demonstrate the methods to connect multiple manufacturer types of heavy equipment; how to use fault codes; retrieve fault codes; open fault code trees, troubleshoot and diagnose; open, use, and graph data list parameters; how to use special tests to diagnose heavy equipment; how to reset adaptive parameters when diagnosing heavy equipment.	24
FOD910	Bobcat S850 T870 PM Mech Trng	Bobcat S850 T870 PM Mechanic Training.This course provides department mechanics & preventive maintenance coordinators with the safety aspects, basic operations & preventive maintenance of Bobcat skid steer loaders S850 & compact track loader model T870.	Upon completion of this course participants will be able to: 1. Will be familiar with the Bobcat Service Manual structure. 2. Explain the safety precautions and procedures of operating and servicing a Bobcat loader. 3. Will be familiar with the operations and features of a Bobcat loader. 4. Explain the service schedule for the S850 and T870 loaders. 5. Perform preventative maintenance service tasks on the Bobcat S850 and T870 loaders plus attachments. 6. Explain the operation and function of the hydraulic control systems used on Bobcat machines. 7. Analyze the different Electrical/Electronic schematics for the S850 and T870 machines. 8. Explain the operation, features, and communication of the instrument panels. 9. Demonstrate on-board functionality using the panels to diagnose and calibrate machine features 10. Explain and demonstrate the ability to read codes from the Bobcat loaders. 11. Service the different electrical connectors used Bobcat loaders. 12. Explain the reasoning for the EGR systems used on Bobcat loaders and how to test. 13. Demonstrate the service requirements and maintenance of the IT4 engine and it's components. 14. Explain the preventative maintenance tasks for the track drive system on the T870 loader. 15. Explain the causes of the most common track damage found on the CTL. 16. Understand electrical & hydraulic schematics for the S850 and T870 loaders.	8

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Course Code	Course Title	Description	Objectives	Duration (in hours)
FOD950	Bobcat Skid Steer - Adv Mechanic	This advanced training course is designed for FOD mechanics to diagnose, troubleshoot an repair Bobcat S850 and T870 skid steers. Focus areas will be on 3 year PM cycle requirements, hydraulics, electrical systems, final drives, engines.	Upon completion of this course the participant will be able to. 1.Rapid review of the following learning objectives: 2.Become familiar with the Bobcat Service Manual structure 3.Explain the safety precautions and procedures of operating and servicing a Bobcat loader 4.Become familiarized with the operation and features of a Bobcat loader 5.Explain the service schedule for the S850 and T870 loaders 6.Perform preventative maintenance service tasks to said loaders 7.Explain the operation and function of the hydraulic control systems used on Bobcat machines 8.Analyze the different Electrical / Electronic Schematics for S850 and T870 machines 9.Explain the operation, features and communication of the instrument panels 10.Demonstrate on-board functionality using the panels to diagnose and calibrate machine features 11.Drive Response 12.Lift/Tilt Calibration 13.Steering Drift 14.Explain and demonstrate the ability to read codes from the different machines 15.Service the different electrical connectors used on these loaders 16.Explain the reasoning for the EGR systems used on Bobcat loaders and how to test 17.Become familiarized with the service requirements and maintenance of the IT4 Engine and its components 18.Explain the preventative maintenance tasks for the track drive system on the T870 loader 19.Explain the causes of the most common track damage found on CTL 20.Understand the electrical and hydraulic schematics for the S850 and T870 21.Address any common noted repairs with S850/T870 units since delivery 22.Any factory service advisories that need addressing from date of December 2013 until present 23.Diagnose, troubleshoot and repair of the following systems: Hydraulics, Electrical, Final Drive, Engine, Fuel System, Emissions, Tracks	16
GEO101	Basic Geotechnical Engineering for Roadways	Presents geotechnical engineering fundamentals relative to the design, construction and maintenance of pavement systems and transportation structures. Addresses the relationship between soil conditions and roadway elements.	Upon completion of the course the participant will be able to: 1. Describe the function and relationship of geotechnical engineering relative to TxDOT transportation projects. 2. Explain the site characterization process relative to both published geologic resources and field sampling and testing. 3. Identify and explain the weight and volume relationship that comprises the fundamentals of soil mechanics. 4. Compare and contrast properties of fine-grained and course-grained soils relative to laboratory test results for soil particle size distribution. 5. Explain the interrelationship between moisture content and soil consistency in terms of Atterberg limits. 6. Identify the primary soil classification systems used for engineering purposes and classify soils, using the AASHTO and Unified Soil Classification Systems. 7. Explain soil compaction and describe how compaction relates to different phases of earthwork construction. 8. Explain the concepts of total stress, effective stress and pore water pressure for both geostatic and induced loading conditions. 9. Define key terms and concepts associated with soil seepage as related to subsurface drainage solutions. 10. Explain the different physical processes of soil movements including consolidation settlement (compressibility) and soil shrinkage/swelling. 11. Evaluate shear strength based on laboratory test data (direct and triaxial shear) and express in terms of cohesion and internal friction.	24

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GEO201	Drilled Shafts FHWA-NHI-132014	This course covers specific technical guidance on all aspects of designing, installing, and monitoring the construction of drilled shafts.	Upon completion of the course the participant will be able to: 1. Describe the various drilling rigs and tools that are available to construct drilled shafts under varied subsurface soil and rock conditions 2. Recognize the basic features of drilling aids, such as casings and drilling slurries, and the reasons for certain fundamental requirements for these aids 3. Design drilled shafts for axial loading in simple soil and rock profiles 4. Demonstrate a general understanding of the elements of designing drilled shafts for lateral loads 5. Demonstrate an understanding of the need for load tests and available methods for performing the tests. 6. Formulate the basic elements of construction specifications for drilled shafts 7. Demonstrate an understanding of integrity testing, repair, and retrofit of defective shafts. 8. Estimate costs for drilled shafts	24
GEO202	Soils And Foundations Workshop FHWA-NHI-132012	Geared towards a foundation field engineer who routinely deals with soils & foundation problems, but has little theoretical background in soil mechanics or foundation engineering. Uses a project-oriented approach from conception to completion.	Upon completion of the course, participants will be able to: 1. Identify the minimum level of geotechnical input in various project phases of a highway project. 2. Recall the equipment and procedures used to implement a subsurface investigation of soil and rock conditions. 3. Demonstrate basic skills in visual description of soils native to the host state. 4. Recall geotechnical facilities and personnel in the host state. 5. Recall the basic soil test procedures and how the results of the various soil tests are applied results to highway projects. 6. List procedures used for both settlement and stability analysis, and recall design solutions to stability and settlement problems for approach roadway embankments. 7. List procedures used for determining bearing capacity and settlement of shallow foundations such as spread footings. 8. Identify the basic skills needed in the design and construction management of driven pile and drilled shaft foundations. 9. Recall the driven pile and drilled shaft foundation construction equipment and construction inspection procedures. 10. Describe static load testing and recall the basic skills needed to interpret static load test results. 11. Recall the basic skills needed in the design and construction of earth retaining structures. 12. Discuss the format and minimum content of an adequate foundation report	32
GEO203	Drilled Shaft Foundation Inspection FHWA-NHI-132070	Basis for local, regional or national qualification of drilled shaft foundation inspectors. Provides practical knowledge & standard industry practices. Follows FHWA specifications. Participants are encouraged to complete NHI-132070B first.	Upon completion of the course the participant will be able to: 1. Identify and understand the inspector's role and duties. 2. Recognize key inspection elements of contract documents. 3. Identify proper communication and coordination with the engineer and contractor. 4. Interpret and verify contractor compliance with items in the drilled shaft installation plan. 5. Recognize and identify drilled shaft construction equipment and tools. 6. Perform visual field verification of soil/rock material for comparison to supplied soil boring data/logs. 7. Calculate percent recovery and rock quality designation (RQD). 8. Recognize and identify the various types of drilled shaft construction. 9. Perform inspection of drilled shaft excavations for compliance with plans, construction tolerances and cleanliness. 10. Verify reinforcing cage construction compliance, including side spacers and cross-hole sonic logging (CSL) tubes. 11. Determine concrete volumes for theoretical shafts and develop concrete curves. 12. Identify shaft "concreting" irregularities. 13. Perform calculations for volume, area, circumference and elevation. 14. Locate, explain and apply applicable FHWA, AASHTO and State DOT specifications relating to compliance.	20

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IOD100	Advanced GPS for GIS Mapping	Advanced instruction for users of Trimble mapping grade equipment; expands on material covered in DES720. Covers GPS mapping techniques using Trimble handheld GPS equipment by utilizing laser measuring devices, bar code readers, and digital cameras.	Upon completion of the course the participant will be able to: 1. Utilize advanced features of current mobile mapping software. 2. Perform advanced data collection techniques to maximize the use of PFO to automate data collection processing in the office. 3. Utilize peripheral hardware to aid field data collection.	20
LGP101	Local Government Project Procedures Qualification for TxDOT	This course trains & qualifies local government (LG) individuals to work on projects performed through an Advanced Funding Agreement. Also trains TxDOT employees on oversight of LG managed project development tasks. FORMER COURSE CODE CON812.	Upon completion of the course the participant will be able to: 1. Review state and federal regulations that govern LG projects. 2. Locate and access resources that assist in successfully completing LG projects. 3. Review project documentation requirements. 4. Discuss LG and TxDOT responsibilities.	12
LGP102	Local Government Projects Construction Administration	To provide participants with tools, resources, and an understanding of the responsibilities and requirements for successfully administering a locally let construction project.	Upon completion of the course the participant will be able to: 1. Review the LGP pre-letting phases 2. Understand the elements and importance of Construction Administration 3. Discuss the LGP close-out process 4. Connect participants to tools and resources	4
MNT101	Virtual Emergency Operations Center (EOC)	This course will teach participants to manage, monitor, correspond, upload documents, and tasks within a Virtual Emergency Operations Center.	Upon completion of the course the participant will be able to: 1. Monitor emergencies 2. Upload documentation to a virtual EOC 3. Respond to tasks issued to the participant or their sections 4. Communicate with Districts/Divisions within the environment	8
MNT112	Wildland Fire Workshop	Six part workshop consisting of Introduction, Organization & Communication, Resources & Equipment, Safety, Documentation & Data Collection, Training Programs. Developed by research project 5-6735-01est Practices for TxDOT on Handling WIldland Fires.	Upon completion of the course the participant will be able to: 1. Assist TxDOT in effectively responding to wildland fire situations; 2. Employ best practices from resources within TxDOT and outside agencies.	6
MNT113	Grnd Penetrate Radar Operator	This course trains district and division employees to operate and maintain calibration of a Ground Penetrating Radar (GPR) unit; to conduct basic analysis of the data collected from the GPR unit.	Upon completing the course, participants will be able to: 1. Identify the components of the system. 2. Demonstrate power-up procedures. 3. Demonstrate calibration procedures. 4. Demonstrate system calibration verification procedures. 5. Conduct measurements. 6. Identify various data formats required for analysis and process data.	8
MNT114	Maint Office Managers Course	Course focuses on techniques & tools to meet the responsibilities of the maintenance office. Modules address leadership, communication, conflict resolution, systems, budget, purchasing, time management, safety, reporting & record keeping.	Upon completion of the course, participants will be able to: 1. Define and understand the core elements of Maintenance Management. 2. Define the Maintenance Office Manager's role in personnel management, programs, and other responsibilities in a maintenance office. 3. Explain their role in the management, and processing of TxDOT resources, such as equipment and supply chain. 4. Develop and practice efficient stock management techniques. 5. Understand the office manager's role using Maintenance Management System (MMS), as well as explaining its capabilities and functions in the maintenance office.	16

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MNT115	General Concept for Pavement Analyst	This course is designed to introduce the participant to the Pavement Analyst System and provide hands on, practical application of the system and its use in evaluating typical pavement related data.	Upon completion of the course the participant will be able to: 1. Define what the Pavement Analyst is, and what it is used for. 2. Describe the data types that can be accessed within Pavement Analyst. 3. Use the Pavement Analyst to locate records, filter condition data, rut data, ride data, skid data, construction data, and CRIS data. 4. Use the Pavement Analyst in order to locate inventory data, identify location reference methods, and run reports. 5. Use the GIS Module to generate maps.	8
MNT116	Advanced Analysis and the 4-year Plans	This course will introduce the learner to the analysis module in Pavement Analyst. This course provides hands on practice running different scenarios within Pavement Analyst.	Upon completion of the course the participant will be able to: 1. Define Network Analysis within the Pavement Analyst System. 2. Define the Network Master File within the Pavement Analyst System. 3. Use the Pavement Analyst System to prepare current section needs. 4. Identify the purpose of the Optimization Analysis window in the Pavement Analyst System. 5. Practice setting up a scenario and reviewing the results using the analysis module within the Pavement Analyst System. 6. Practice including projects from a work plan, generating work plans, and maintaining work plans in the Pavement Analyst System.	8
MNT120	Asphalt Distributor Operator	This course covers the safety practices, preventive maintenance procedures, and operation techniques of an asphalt distributor.	Upon completion of the course the participant will be able to: 1. Complete a pre-trip inspection; 2. Operate an asphalt distributor; 3. Heat asphalt material to an application temperature; 4. Strap an asphalt distributor tank; 5. Enter application data into the distributor computer; 6. Discuss application problems and causes; 7. Calculate application rate.	32
MNT123	Maintenance Section Supervisor Course	This course provides maintenance section supervisors, assistant supervisors & specifically identified maintenance employees with information, practical applications & resources to help them perform their jobs more efficiently, effectively & safely.	Upon completion of the course the participant will be able to: 1. Practice supervisory skills needed for overseeing section operations. 2. Identify the impact that leadership and section operations have on the workplace environment. 3. Discuss the importance of individual accountability in following safety policies and procedures. 4. Review contract policies, procedures and documentation. 5. Identify activities in emergency response operations. 6. Manage section budgets. 7. Practice supervisory skills needed for responding to legal issues. 8. Review traffic control policies and procedures. 9. Practice supervisory skills needed for equipment preventative maintenance and purchasing. 10. Practice supervisory skills needed for managing public complaints.	24

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MNT125	Maintenance Contract Inspectors Course	Introduces & reinforces TxDOT maintenance contract inspection policies & guidelines. Includes monitoring maintenance contractor work; ensuring that work meets contract requirements & ensuring that contractors meet applicable specifications.	Upon completion of the course, participants will be able to: 1. Explain services that can be contracted. 2. Explain the different types of maintenance contracts. 3. Explain when a service contract should be used. 4. Identify documents found in a maintenance contract and identify the ones most important to a contract inspector. 5. Explain the responsibilities of the contract inspector in regard to the events that need to take place BEFORE work begins. 6. Name the location in the Construction and Maintenance Contract System (CMCS) to confirm insurability status. 7. Conduct a pre-work meeting successfully. 8. Explain reasons for projecting a positive public image. 9. Discuss why traffic control is a critical on-the-job guideline. 10. Identify key elements of a good contractual relationship with the contractor. 11. List equipment and supplies needed to do the job. 12. Identify the important considerations in the inspection process. 13. Provide three reasons for keeping clear, concise and accurate records. 14. Discuss the process of documenting inspections and properly completing Daily Work Reports and Diary. 15. Document all items necessary for a Daily Work Report thoroughly and in detail. 16. Discuss the purpose of function codes and task numbers. 17. Identify the standards and specifications manuals for specific contract work. 18. Identify the function codes for each specific contract job and how to use them. 19. Review the responsibilities of inspecting and approving contractors' equipment. 20. Utilize department standards to judge quality work performed by contractors.	24
MNT126	Maintenance Crew Leaders Course	An overview of the Transportation Maintenance Crew Chief job duties (daily operations, organization, management, leadership, etc.). Builds and promotes effective crew leader skills to successfully meet & exceed mission requirements.	Upon completion of the course, participants will be able to: 1. Identify and apply situational leadership skills by identifying personal leadership styles. 2. Apply principles of being a pro-active leader. 3. Identify how planning and scheduling directly relates to resources, materials, equipment, quality and efficiency. 4. Exercise efficient time management and prioritizing techniques. 5. Describe the importance of safety meetings. 6. List the steps in accident/incident reporting. 7. Apply fundamental requirements of the TMUTCD in work zone operations. 8. List the steps in emergencies and hazardous materials situations. 9. Use the Maintenance Manual daily, as required. 10. Explain supervisory responsibilities for equipment preventive maintenance. 11. Apply Crew Leader specific items such as SW3P, asphalt pavement failures, repairs and preventions, seal coat operations, vegetation management and sign maintenance. 12. Identify different types of road environments. 13. Discuss features, use and importance of the MMIS system. 14. Discuss and apply requirements related to Maintenance Contracting. 15. Outline the steps for processing utility and driveway permits. 16. Discuss the steps in materials testing. 17. Discuss the importance of making sound, ethical decisions on a daily basis. 18. Discuss department policies on fraud, misuse of state property and other operational policies related to the Crew Chief position.	24
MNT127	Maintenance Bridge Inspection Course	Provides training on performing bridge inspections, utilizing safety and operational requirements to recognize potential structural problems. Participants will complete an end-of-course exam.	Upon completion of the course, participants will be able to: 1. Describe common bridge types and components. 2. Inspect and identify maintenance or repair needs. 3. Document structural and functional conditions. 4. Reduce and prevent structure deterioration. 5. Reduce long-term maintenance costs. 6. Apply departmental safety procedures while conducting inspections.	16

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MNT128	Advanced Maintenance Operation	Designed to provide Maint Section Supvsrs, Area Engrs, Drctrs of Maint, Drctrs of Operations & District Maint Mgrs with advanced information, new & innovative concepts, tools, resources & skills to perform jobs more efficiently, effectively & safely.	Upon completion of the course, participants will be able to: 1. Recognize ways to develop and share best practices through the building of relationships throughout the maintenance network. 2. Discuss the management of an effective short and long range pavement maintenance plans. 3. Identify qualities of a proactive maintenance program and develop effective strategies. 4. Evaluate and apply the concepts used in successful asset preservation programs. 5. Discuss the use of advance budgeting methods and tools to develop, implement, and manage an effective maintenance operating budget and One Year Plan. 6. Explain the uses of the Maintenace Management System to effectively aid in planning, project selection, and budgeting. 7 Introduce concepts, methods, and strategies needed to recognize and develop future TxDOT leaders in maintenance.	24
MNT129	Maintenance Leadership Academy FHWA-NHI-134063	Covers planning, scheduling, quality control, customer focus, program presentation, asset management, contract management & performance improvement for maintaining bridge & highway systems. Consists of self-paced lessons via Web & classroom sessions.	Upon completion of the course, participants will be able to: 1. Describe the use of maintenance administration in achieving highway agency goals. (Module A) 2. Describe how various treatments fit into an overall system preservation program and when to implement them. (Module B) 3. Identify appropriate drainage maintenance and roadside management techniques. (Module C) 4. Describe the maintenance manager's roles and responsibilities for developing, implementing and managing a comprehensive plan for dealing with weather-related events. (Module D) 5 .Explain the maintenance and use of traffic control devices (including work zone plans, work zone traffic control devices, signs, striping, guardrails and median barriers) in maintenance operations. (Module E) 6. Describe how environmental protection issues, regulations and control measures affect highway maintenance activities. (Module F)	108
MNT130	Maintainer Operator Basic	This course covers safety practices, preventive maintenance, operations and transportation of a maintainer. It is the prerequisite to MNT134.	Upon completion of the course, participants will be able to: 1. Explain the safety procedures on and around the maintainer; 2. Complete a pre-trip inspection; 3. Execute start-up and shut-down procedures; 4. Perform basic control movements of the maintainer; 5. Demonstrate proper flat blading; 6. Use correct blade pitch; 7. Maintain straight material lines; and 8. Transport the maintainer.	32
MNT134	Maintainer Operator Advanced	This advanced skills course is for operators who have completed MNT130 and have 1 year experience with operating a maintainer.	Upon completion of the course the participant will be able to: 1. Operate the blade, circle, wheels, articulation system and all attachments for ditching operation 2. Cut a vee ditch 3. Cut a flat bottom ditch 4. Cut a back slope 5. Explain when to use the scarifier and ripper 6. Demonstrate the scarifier and ripper	32

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MNT135	Advanced Maintenance Contract Inspectors Course	Course reviews basic TxDOT maintenance contract inspection policies & guidelines. Includes monitoring contractors to ensure work meets requirements & applicable specifications. This course is mandatory every five (5) years.	Upon completion of this course the participant will be able to. 1. Explain the responsibilities of contract inspectors to be ethical and to uphold standards of material quality control. 2. Explain the use of a set of plans in inspection of a specific contract job. 3. Create Daily Work Records (DWRs) and assess them for accuracy and necessary detail of the information they contain. 4. Identify and use the Standards and Specifications and the function codes for each specific contract. 5. Describe the responsibilities of inspecting and approving the contractor's equipment and materials used in a contract. 6. Explain the use of department standards to judge the proper quality and specification compliance of work performed by the contractor promoting uniformity in maintenance contract standards statewide.7. Inspect work zone devices, roadside sign assemblies, delineators and object markers, pavement markings and raised pavement markers for condition, proper placement, configuration and installation 8. Explain the inspection techniques, recommendations, and item/materials specifications used in bridge preventive maintenance. 9. Identify correct responses to maintenance activities that impact environmental resources. 10. Describe the process for handling an unexpected discovery of a hazardous waste spill located during routine inspections. 11. Locate job aids including standards, specifications, materials lists, and contacts useful to the job of a maintenance contract inspector.	8
MNT140	Telescopic Hydraulic Excavator	This course covers safety practices, preventive maintenance, operations, and transportation of a telescopic hydraulic excavator.	Upon completion of the course the participant will be able to: 1. Conduct a walk-around inspection of a telescopic hydraulic excavator. 2. Execute start-up and shut-down procedures. 3. Apply the excavator brakes. 4. Switch machine from transport mode to remote mode for digging operations. 5. Operate the excavator controls. 6. Drive the equipment on the highway to the jobsite. 7. Dig a flat ditch and slope the sides. 8. Dig a ditch over the side using the appropriate controls. 9. Backfill an excavation. 10. Load a dump truck.	32
MNT145	Dozer Operator	This course covers the skills needed to safely operate, maintain and transport a dozer.	Upon completion of the course the participant will be able to: 1. Perform a complete walk-around inspection. 2. Orient the blade to flat-blade. 3. Flat-blade a given area. 4. Stockpile material. 5. Cut a Vee ditch. 6. Backfill an excavation. 7. Discuss all safety aspects about the operation of the dozer.	24
MNT148	Snowplow Operator	Designed to provide advanced skill sets for snowplow operators; each participant will complete a series of progressively more difficult simulations on the L-3 Driver Training Solutions Snowplow Simulator accompanied by coaching from instructors.	Upon completion of the course the participant will be able to: 1. Discuss and apply the proper decision making in snowplow operations using the SMART process; 2. Identify the circles of influence related to distractions when operating a snowplow; 3. Discuss how to mitigate hazards encountered during snowplow operations; 4. Discuss and understand visibility concerns during snowplow operations; 5. Understand the effects of fatigue on the operator during snowplow operations; 6. Demonstrate the principles of managing space around the vehicle during snowplow operations via simulation; 7. Demonstrate and apply stopping time, speed and stopping distance calculations via simulation; 8. Demonstrate the guidelines for determining an efficient safe speed in varying conditions and situations via simulation; 9. Identify industry best practices for safe and efficient snowplow operations; 10. Demonstrate by means of increasingly difficult simulations the proper and safe techniques for snowplow operations.	4

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MNT149	Anti-icing/De-icing Equipment Training	1 hour classroom training on anti-icing, de-icing materials and proper application rates and calibration techniques. 3 hour equipment inspection and calibration with hands on training.	Upon completion of the course the participant will be able to: 1. Calibrate spray equipment to insure more accurate applications on the roadways 2. Analyze rates of materials to be applied 3. Discuss truck nozzle configurations and outputs of nozzles	4
MNT150	Dragline/Crane	This course covers the techniques to safely and properly operate a dragline/crane. Participants will receive a knowledge base upon which potential operators can further develop operating skills.	Upon completion of the course the participant will be able to: 1. Perform preventive maintenance and a pre-trip inspection of the dragline/crane before equipment operation. 2. Discuss all safety aspects about the operation of the dragline/crane. 3. Demonstrate the proper operational procedure for operating the dragline/crane. 4. Demonstrate a proper inspection of the key components of the dragline/crane during the operation of the equipment. 5. Rate the proper way to road the dragline/crane and/or load and position the equipment on the trailer.	32
MNT155	Backhoe Operator	This course is designed to provide department personnel with the proper skills to safely operate, maintain, and transport a backhoe.	Upon completion of this course, operators will be able to: 1. Discuss the safety aspects of backhoe operation. 2. Complete a walk-around inspection of the backhoe. 3. Employ backhoe attachments, outriggers, and front bucket. 4. Use the backhoe for digging a trench. 5. Slope a ditch on both sides with a backhoe. 6. Excavate a given-sized area to grade. 7. Backfill an excavation and trench. 8. Discuss proper methods of transporting a backhoe.	24
MNT160	Loader Operator	This course covers the proper operation of a loader and cost-saving maintenance requirements and techniques.	Upon completion of the course the participant will be able to: 1. Conduct a walk-around inspection. 2. Drive the loader on the highway to the job site. 3. Stockpile material. 4. Load a dump truck.	16
MNT164	Vacuum Sweeper Operator	This course covers the safety practices, preventive maintenance procedures, operation techniques, and transporting procedures for a sweeper.	Upon completion of the course the participant will be able to: 1. Conduct a walk around inspection. 2. Orient the sweeper and its attachments to and from the job site. 3. Make adjustments to the brooms to improve performance. 4. Sweep a street or roadway. 5. Dump the collector. 6. Discuss all safety aspects about the operation of the sweeper. 7. Point out the controls for accomplishing different functions for the sweeper.	24
MNT166	Rotary Broom Operator	This course covers the knowledge and skills to safely operate, maintain, and transport a rotary broom sweeper.	Upon completion of the course the participant will be able to: 1. Discuss the safety aspects of the rotary broom sweeper. 2. Perform a pre-trip inspection and document the condition of the equipment. 3. Demonstrate engaging and disengaging the broom. 4. Inspect the key components of the rotary broom sweeper during operation. 5. Perform a proper sweeping pattern. 6. Determine the range the range of speed and throttle for operation. 7. Discuss proper methods of transporting the broom.	16

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Course Code	Course Title	Description	Objectives	Duration (in hours)
MNT172	Equipment Load & Tie Down	This course covers safe transportation of construction equipment and materials over public roads and highways. Emphasis will be on available equipment at the training location.	Upon completion of the course the participant will be able to: 1. State the general requirements for over the road transportation which pertain to vehicle weight, height, width and length. 2. Explain the concept of center-of-gravity. 3. Explain the idea of the CG markings on equipment. 4. Discuss the characteristics of construction equipment in relation to over the road transportation. 5. Discuss the characteristics of construction materials in relation to over the road transportation. 6. State the regulatory requirements for the road transportation of hazardous waste and dangerous cargos. 7. State the regulatory requirements for placarding on over the road transportation.	8
MNT175	Profiler Operator	This course covers the safety practices, preventive maintenance procedures, operations, and transporting procedures of the Profiling Machine.	Upon completion of this course the participant will be able to: 1. Perform preventive maintenance and a pre-trip inspection of the profiler before operating the equipment. 2. Discuss all safety aspects about the operation of the profiler. 3. Demonstrate the proper operational procedure for operating the profiler. 4. Make and maintain straight scar lines. 5. Demonstrate and maintain profile depths. 6. Decide what range of speed and throttle speed to operate the profiler. 7. Demonstrate and maintain the proper grade and slope control sensor setting and operation. 8. Demonstrate how to properly park the profiler. 9. Demonstrate how to stop the engine and lower the equipment with the engine stopped.	32
MNT180	Bucket Truck & Digger Derrick	This course covers the safe operation and preventive maintenance of the various bucket trucks and digger derrick trucks used by the department.	Upon completion of the course the participant will be able to: 1. State purpose and application of the ANSI standards. 2. Identify each component of a hydraulic system and explain purpose and operation of each. 3. State specifications and identify support structure elements on aerial devices and digger derricks and the safety issues applicable to each. 4. Perform preventative maintenance checks, setup, and teardown vehicles and equipment at jobsite and use auxiliary tools and accessories operated from trucks. 5. Name critical practices for working in close proximity to energized electrical utility structures, perform steps for setup, operation and teardown of traffic barriers and explain grounding practices and procedures. 6. Perform aerial lift rescue procedures.	24
MNT181	Bucket Truck & Crane	This course covers the safe operation and preventive maintenance of the various bucket trucks and digger derrick trucks used by the department.	Upon completion of the course, participants will be able to: 1. State purpose and application of the ANSI standards. 2. Identify the components of a hydraulic system and explain the purpose and operation of each. 3. State specifications and identify support structure elements on aerial devices and the safety issues applicable. 4. Perform preventative maintenance checks, setup, and teardown vehicles and equipment at jobsite and use auxiliary tools and accessories operated from trucks. 5. Name critical practices for working in close proximity to energized electrical utility structures, perform steps for setup, operation and teardown of traffic barriers and explain grounding practices and procedures. 6. Perform aerial lift rescue procedures.	16
MNT192	Skid-Steer Operator	This course covers the safety practices, preventive maintenance procedures, operation techniques, and transporting procedures for a skid steer.	Upon completion of the course, participants will be able to: 1. Perform a pre-trip inspection of a skid steer. 2. Discuss the safety aspects of a skid steer. 3. Demonstrate basic operations of a skid steer. 4. Change and operate various attachments. 5. Discuss methods of transporting a skid steer.	12

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MNT193	Roller Operator	This course covers the knowledge and skills to safely operate, maintain, and transport a pneumatic and a metal flat wheel roller.	Upon completion of the course the participant will be able to: 1. Explain the difference in pneumatic and metal flat wheel roller operations. 2. Discuss the safety aspects of roller operation. 3. Complete a pre-trip inspection of a pneumatic and metal flat wheel roller. 4. Demonstrate how to properly compact road material using the pneumatic and metal flat wheel roller. 5. Discuss proper methods of transporting a roller.	8
MNT208	Heavy Equipment Hydraulics	This course covers the skills and knowledge for safely testing, repairing and maintaining hydraulic systems on heavy equipment.	Upon completion of the course the participant will be able to: 1. Explain the relationship of flow, pressure, and resistance. 2. Calculate horsepower, work, and hydraulic vantage. 3. Explain open and closed center hydraulic systems. 4. Explain operating principles and functions of hydraulic components. 5. Select the correct hose type and size. 6. Select the correct hydraulic fluids. 7. Use service manuals to determine hydraulic system specifications. 8. Use diagnostic tools such as pressure gauges and flowmeters. 9. Demonstrate a systematic approach to troubleshooting.	24
MNT209	Heavy Equipmt Basic Electronic	This course covers the basic electronic theory of the types of engines in TxDOT's fleet. This helps the learner perform diagnostics, troubleshoot and repair electronic systems on heavy equipment employing electronic fuel and operating systems.	Upon completion of the course the participant will be able to: 1. Explain the basic fundamentals of electricity and electronics and differentiate between the two. 2. Identify electronic components. 3. Check and analyze a wiring schematic. 4. Examine an electrical circuitry using a wiring schematic. 5. Practice electrical safety. 6. Demonstrate the proper use of electrical and electronic testing equipment. 7. Demonstrate electrical/electronic troubleshooting procedures. 8. Use specific service publications for equipment being serviced.	24
MNT210	Equip Preventive Maintenance	PM is scheduled inspections, services, & repairs recommended by the equip mfgr & those required by law or TxDOT policy. This course uses the periodic inspection process to identify maintenance problems & provides guidance on correcting minor problems.	Upon completion of the course, participants will be able to: 1. Cite TxDOT policy on preventive maintenance. 2. Inspect equipment in a consistent method using TxDOT inspection checklists. 3. Identify and document maintenance problems. 4. Explain the various PM schedules. 5. Use the equipment operator manual for performing PM checks. 6. Perform minor corrective actions before leaving the maintenance yard.	16
MNT215	Intro to Heavy Equipment	This is an introduction to the safe operation, maintenance, & transportation of heavy equipment. Participants receive guidelines for preventive maintenance, pre-trip & post-trip inspections, mandatory safety requirements & transporting heavy equipment.	Upon completion of the course the participant will be able to: 1. Identify TxDOT heavy equipment and the functions served. 2. Describe the safety requirements of operating heavy equipment. 3. Demonstrate how to properly complete a pre-trip inspection checklist. 4. Identify and document common maintenance problems. 5. Use and process the appropriate pre-trip inspection form. 6. Identify the best means of transporting equipment to a work site.	8

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Course Code	Course Title	Description	Objectives	Duration (in hours)
MNT300	Dump Truck Driver 4-6 Yd	Course covers the operation of a power unit (dump truck), trailer & equipment for transportation. Focus is on TxDOT, state/federal laws & safety practices for 4 - 6 yd dump trucks pulling a loaded straight tongue trailer. Participants must have CDL.	Upon completion of the course the participant will be able to: 1. Operate an electronic engine while working with a loaded trailer. 2. Use the automatic and manual transmission under load. 3. Operate air brakes, anti lock brakes and brake regarders under heavy load conditions. 4. Demonstrate proper pre-trip procedures for the power unit and trailer loaded and unloaded. 5. Conduct hook-up and drop procedures. 6. Use the brake system under heavy load conditions. 7. Prepare and place equipment on trailer 8. Identify the hauling characteristics of various types of equipment. 9. Load and unload trailers. 10. Discuss TxDOT policy, state and federal laws, regulations and safety practices for loading, unloading and securing of equipment on straight tongue trailers with dump truck power units. 11. Demonstrate preventive maintenance measures for the power unit, equipment transported and the trailer. 12. Operate a loaded unit on the roadway using defensive driving techniques.	32
MNT301	Dump Truck Driver 10-12 Yd	Course covers the operation of a power unit (dump truck), trailer & equipment for transportation. Focus is on TxDOT, state/federal laws & safety practices for 10 - 12 yd dump trucks pulling a loaded straight tongue trailer. Participants must have CDL.	Upon completion of the course the participant will be able to: 1. Operate a dump truck with a loaded trailer. 2. Use the automatic and manual transmission under load pertaining to the size of dump truck. 3. Correctly operate air brakes, under different load conditions. 4. Follow proper pre-trip procedures for the dump truck, to include the trailer loaded and unloaded. 5. Conduct proper hook-up and drop procedures. 6. Use the brake system under different load conditions. 7. Prepare and place equipment on a trailer. 8. Identify the hauling characteristics of various types of equipment. 9. Load and unload trailers. 10. Utilize TxDOT, state and federal laws, regulations, and safety practices pertaining to loading and unloading or securing of equipment dump trucks and trailers. 11. Demonstrate preventive maintenance on dump trucks and trailers. 12. Operate a loaded Dump Truck on the roadway using defensive driving techniques.	32
MNT303	Semi-Tractor/Trailer Driver	Course covers the operation of a tractor/trailer combination. Focus is on TxDOT, state/federal laws & safety practices for tractor-trailer rigs. Participants must have CDL.	Upon completion of the course the participant will be able to: 1. Perform tractor-trailer rig pre-trip inspection in accordance with CDL standards. 2. Demonstrate correct ascend and descend gear sequences using double clutching method. 3. Recognize professional driving techniques and key safe driving elements. 4. Perform CDL brake check and minor adjustments with manufacturer recommendations. 5. Perform backing tractor-trailer rig with/without additional trailer. 6. Perform safe and efficient coupling and uncoupling of trailer to tractor unit. 7. Define and perform safe, legal loading and securing procedures for van, flat bed, heavy equipment haul trailers (lowboys). 8. Exhibit ability to properly operate a diesel engine.	24
MNT305	CDL Preparatory Exam Training	This course provides classroom and hands-on training to help the participant successfully pass the 5 written exams and skills tests required by the state for a CDL. NOTE: Participants are responsible for all CDL license related fees.	Upon completion of the course the participant will be able to: 1. Demonstrate mastery of general knowledge of sections 1, 2, 3 of the Texas Commercial Motor Vehicle Drivers Handbook. 2. Identify parts of an air brake system, describe what to inspect on an air brake system, and state proper use of air brakes. 3. Demonstrate how to drive a combination vehicle. 4. Describe what to inspect on a combination vehicle; 5. Demonstrate proper commercial vehicle pre-trip inspection; 6. Demonstrate a proper right and left turn; 7. Demonstrate proper coupling and uncoupling of a trailer; 8. Demonstrate how to properly perform air brake skills test on a vehicle. 9. Demonstrate proper backing and parallel parking of a truck and trailer. 10. Recognize the variety of situations participant may face during the on-road driving test. 11. Demonstrate how to control vehicle during basic vehicle control skills test.	32

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MNT306	Truck Driving Simulation Training	This course will expedite and enhance the skill sets for inexperienced and experienced dump truck operators. Each participant will complete a series of progressive simulations on the MPRI dump truck simulator followed by coaching from the instructor.	Upon completion of the course, the participant will be able to: I. Discuss and apply the proper driving decision making based on environmental influence and hazard perception; 2. Discuss all safety aspects about the operation of the dump truck; 3. Demonstrate the proper operational procedure for space and speed awareness; 4. Demonstrate a proper following distance; 5. Demonstrate the proper vehicle handling; 6. Understand the center of gravity as it applies to the vehicle; 7. Demonstrate the proper handling of emergency situations.	4
MNT409	Herbicide Operator Training	Employees who wish to become licensed as a Non-Commercial Pesticide Applicator for TxDOT, must complete an 8-hour training that will teach them pesticide safety, laws and regulations, herbicide uses in agency ROW, equipment calibration and operation.	Upon completion of this course the participant will be able to: The employee will be able to pass the Texas Department of Agriculture (TDA) General Standards and Vegetation Management tests. Additionally, the participant will be able to: 1. Read and understand a pesticide label 2. Calibrate and operate herbicide application equipment, 3. Measure, pour and safely mix herbicides 4. Understand the TxDOT Herbicide Operations Program to make safe, lawful and effective herbicide applications in TxDOT ROW's	8
MNT410	Herbicide Certification	The current Agriculture Code requires TxDOT employees to possess a valid, non-commercial, pesticide applicator's license prior to applying herbicide on the transportation system right-of-way, or on the grounds of any TxDOT building.	Upon completion of the course the participant will be able to: 1. Recognize the appropriate herbicides to control specific unwanted vegetation; 2. Discuss spray roadway appurtenances safety and prevent erosion; and 3. Describe how to operate, calibrate and repair TxDOT constructed herbicide spray vehicles.	8
MNT411	Herbicide Equipment Training	A hands-on training on the operation & maintenance of herbicide equipment used by maintenance personnel with a pesticide applicator's license. The course will ensure proper application of herbicide equipment & decrease down time for equipment repairs.	Upon completion of the course, participants will be able to: 1. Demonstrate ability to operate herbicide equipment; 2. Calibrate herbicide equipment; 3. Troubleshoot potential equipment problems; and 4. Perform minor repairs to equipment.	4
MNT412	Revegetation Training	Introduces design concepts & tasks necessary to develop plans & specifications that lead to successful revegetation. Covers inspection & monitoring activities for successful revegetation.	Upon completion of the course the participant will be able to: 1. Describe the fundamental principles of revegetation operations; 2. Specify planting methods and materials for successful revegetation; 3. Describe limited number of erosion control techniques; 4. Detail common revegetation methods; 5. Direct a contractor's revegetation operations.	7
MNT512	ABS/Hydraulic Brake System	Course covers skills and working knowledge of ABS/Hydraulic brake systems on light duty vehicles and heavy equipment. Material includes diagnostics, troubleshooting, and performing routine and basic repairs.	Upon completion of the course, partcipants will be able to: 1. Demonstrate a knowledge and understanding of the basic theory and operation of hydraulic brake system. 2. Explain the basics of ABS brake operation. 3. Identify and locate hydraulic and ABS brake system components and explain their function. 4. Analyze brake problems including brake components for wear and usability. 5. Make brake system adjustments. 6. Make brake system and/or components repairs. 7. Use service publications pertaining to the brake system being serviced. 8. Use "special tools" and equipment related to brake repair. 9. Practice general shop safety.	24

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MNT516	ABS/Pneumatic Brake System	Course covers skills and working knowledge of ABS/Pneumatic brake systems on light duty vehicles and heavy equipment.	Upon completion of the course, participants will be able to: 1. Demonstrate basic knowledge of the theory and operation of pneumatic brake systems. 2. Explain the basics of ABS brake operation. 3. Identify and locate pneumatic and ABS brake system components and explain their function. 4. Analyze brake problems including brake components for wear and usability. 5. Make brake system adjustments. 6. Make brake and/or component repairs. 7. Use service publications pertaining to the brake system being serviced. 8. Use "special tools" and equipment related to brake repair. 9. Practice general shop safety.	24
MNT600	Welding, General Shop	Introduces basic TxDOT shop safety, identification and proper handling of hazardous materials, elementary interpretation of blueprints, operation of oxy-fuel cutting and welding equipment, and operation of Shielded Metal Arc Welding (SMAW) equipment.	Upon completion of the course the participant will be able to: 1. Identify hazards associated with welding equipment and processes. 2. Interpret a Material Safety data Sheet (MSDS). 3. Use and maintain tools and equipment. 4. Practice shop welding safety. 5. Perform math calculations. 6. Identify object views, lines and dimensions. 7. Demonstrate proper use of measuring devices. 8. Fabricate a simple project. 9. Identify and classify fuels and filler metals. 10. Identify and maintain major components of oxy-fuel welding equipment. 11. Describe oxy-fuel welding and cutting safety procedures. 12. Demonstrate methods for testing oxy-fuel systems for leaks. 13. Demonstrate how to set up, light, adjust, extinguish and disassemble oxy-fuel welding equipment. 14. Explain the effects of torch angle, flame height, filler metal size and welding speed on gas welds. 15. Perform entry-level oxy-fuel welding and cutting operations. 16. Describe plasma torch and plasma arc cutting. 17. Set-up and use a plasma cutting torch. 18. Describe principles of Shielded Metal Arc Welding (SMAW). 19. Identify and explain the functional components of an arc welding machine. 20. Identify electrode classifications. 21. Define welding current, open circuit voltage and operating voltage. 22. Set up an arc welding machine properly. 23. Demonstrate knowledge of SMAW safety. 24. Perform SMAW operations in various positions, using selected electrodes and welding different joint designs.	32

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MNT602	Welding, Shield Metal Arc (Basic)	Introduces the beginning welder to the basic requirements and fundamentals of the Shielded Metal Arc Welding (SMAW) process. Provides a review of shop safety and oxy-fuel cutting techniques.	Upon completion of the course the participant will be able to: 1. Define the principles of arc welding. 2. Identify and explain the functional components of an arc welding machine. 3. Define welding current, open circuit voltage and operating voltage. 4. Identify American Welding Society electrode classification. 5. Describe arc welding operations of fillet and groove joints. 6. Explain precautions used when welding various metals and alloys. 7. Explain heat treatments of low-alloy steels. 8. Describe effects of pre-heating and post-weld heating. 9. Explain weld size and profiles. 10. Select materials for a job. 11. Set up oxy-fuel welding and cutting equipment. 12. Prepare plates for welding. 13. Demonstrate safe uses of tools and equipment. 14. Set up an arc welding machine properly. 15. Perform SMAW operations in various positions, using selected electrodes and different joint designs. 16. Identify and explain the functional components of Carbon Arc Cutting equipment. 17. Perform Carbon Arc Cutting (gouging). 18. Discuss quality control in weld testing and inspection. 19. Prepare test coupons. 20. Perform coupon testing. 21. Identify discontinuities and defects in welds.	32
MNT603	Welding, Shield Metal Arc (Advanced)	Further advances welding techniques in the Shielded Metal Arc Welding (SMAW) process. Participants will be required to produce welds in the vertical and overhead positions on plate, T joint (multiple passes) and V groove with backing bar on mild steel.	Upon completion of the course the participant will be able to: 1. Define principles of arc welding. 2. Identify and explain the function of the components of an arc welding machine. 3. Define welding current, open circuit voltage and operating voltage. 4. Identify the American Welding Society electrode classification. 5. Describe arc welding operations of fillet and groove joints. 6. Explain precautions used when welding various metals and alloys. 7. Explain heat treatments of low alloy steels. 8. Describe effects of pre-heating and post-weld heating. 9. Explain weld size and profiles. 10. Select materials for a job. 11. Set up oxy-fuel welding and cutting equipment. 12. Prepare plates for welding. 13. Demonstrate the safe use of tools and equipment. 14. Set up an arc welding machine properly. 15. Perform SMAW operations in various positions, using selected electrodes and different joint designs. 16. Identify and explain the functions of the components of Carbon Arc Cutting equipment. 17. Perform Carbon Arc Cutting (gouging). 18. Discuss quality control in weld testing and inspection. 19. Prepare test coupons. 20. Perform coupon testing. 21. Identify discontinuities and defects in welds. 22. Discuss problems of welding discontinuities. 23. Perform corrective measures for weld discontinuities and defects.	32
MNT604	Welding, Gas Metal Arc (GMAW)	Introduction to the principles of Gas Metal Arc Welding (GMAW), equipment setup, use & safety. Will produce fillet welds in flat, vertical & horizontal positions on plate, T-joint & V-groove with backing bar on mild steel. Includes aluminum welding.	Upon completion of the course the participant will be able to: 1. Explain the basic theory of gas metal arc welding. 2. Define gas metal arc welding terms. 3. Identify gas metal arc welding equipment and components. 4. Describe safety rules and equipment used.. 5. Discuss filler metals. 6. Discuss metal transfer in gas metal arc welding. 7. Properly set-up GMAW welding equipment. 8. Describe welding positions with various joint designs on plate. 9. Prepare plates for welding. 10. Weld structural joints. 11. Discuss aluminum welding. 12. Identify aluminum welding equipment and components. 13. Select materials. 14. Perform aluminum welding operations. 15. Evaluate quality of welds.	32

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MNT606	Bridge Welding Training	This course is designed for the experienced welder with a good foundation in the basics of welding. The course will focus on welding requirements and techniques necessary to obtain a TxDOT Bridge Welders Certification issued by the Bridge Division.	Upon completion of the course, participants will be able to: 1. Demonstrate proper techniques necessary to produce quality fillet and groove welds using SMA E-7018 electrodes (using either 1/8" or 5/32" diameter rods) in all positions. 2. Demonstrate proper techniques necessary to perform removal of existing weld. 3. Make groove welds on 1" plate specimens in the vertical (3G) and overhead (4G) positions.	32
MNT702	Seal Coat Inspection & Applications	Provides instruction on the proper inspection methods and equipment used in seal coat construction.	Upon completion of the course the participant will be able to: 1. Describe the concept of pavement preservation strategies. 2. Explain the need for pavement preservation training. 3. Review seal coat terminology. 4. Describe the need for and limitations of seal coat applications. 5. Discuss factors which may influence the performance of seal coat treatments. 6. Identify defects in seal coats and surface treatments. 7. Describe safe practices and procedures applicable to seal coat work. 8. Describe the preparatory phases for a seal coat project. 9. Describe repairs that may be required prior to a seal coat project. 10. Describe the proper methodology of stockpiling aggregate. 11. Describe how to effectively plan and conduct a pre-construction meeting. 12. List typical types of equipment required for a seal coat project. 13. Explain the general inspection procedures for seal coat equipment. 14. Describe the sequence of events during a full-width seal coat, strip/spot seal or surface treatment application.	8
MNT703	Seal Coat Planning & Design	Provides engineering guidelines for planning, designing and constructing seal coats.	Upon completion of the course the participant will be able to: 1. Describe the concept and goals of pavement preservation strategies. 2. Explain the need for pavement preservation training. 3. Describe different maintenance treatments. 4. Review seal coat terminology. 5. Describe the need for and limitations of seal coat applications. 6. Discuss factors which may influence the performance of seal coat treatments. 7. Identify defects in seal coats and surface treatments. 8. Identify roadway factors that affect the decision to use a seal coat process. 9. Identify the type of roadway surface deficiencies that benefit from seal coats. 10. Explain how traffic volume affects seal coat treatments. 11. Describe various types of seal coats and surface treatments. 12. Explain how to apply the Modified Kearby Design Method. 13. Describe and apply the process of communication and coordination in a seal coat project. 14. Explain the properties and specifications of various binders and aggregates to determine proper selection for seal coat projects. 15. Describe how to plan and contract a seal coat project. 16. Demonstrate how to effectively handle customer seal coat or surface treatment complaints.	7
MNT801	Bridge Maintenance FHWA-NHI-130108	Focuses on cost-effective bridge maintenance and repair procedures performed by typical transportation agency crews. Includes step-by-step maintenance and repair instructions on common bridge elements. Bridge preservation is emphasized throughout.	Upon completion of the course the participant will be able to: 1. Justify, develop and implement a cost-effective preservation strategy for a group of bridges. 2. Identify maintenance or repair needs and select the best remedial strategy. 3. Describe properties and preservation options involving common bridge materials such as concrete, steel and timber. 4. Describe the step-by-step tasks required to accomplish proven preservation procedures on the various bridge elements. 5. Identify critical members and avoid procedures that might result in damage such as field welding repairs on fracture critical tension members. 6. Recognize problems that warrant specialized expertise. 7. Apply effective management techniques (such as planning, scheduling, monitoring and reporting) during daily bridge maintenance operations.	32

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MNT803	Flexible Pavement Design Previously Rehab Strategies for Flexible Pavements	This course will cover the details of flexible pavement design as described in the Texas Department of Transportation's (TxDOT's) Pavement Manual.	Upon completion of the course the participant will be able to: 1. Understand the flexible pavement design process 2. Understand traffic data projections 3. How to run FPS 21 and Modulus 7 programs 4. Obtain basic soils data from online soils map 5. Understand the benefits of ground penetrating radar (GPR), falling weight deflectometer (FWD) and dynamic cone penetrometer (DCP) 6. Understand the requirements of a pavement design report and pavement design standard operating procedures (SOP)	16
MNT812	Winter Weather Operations	It is important that each District and its maintenance sections provide an acceptable level of service during snow and ice events that permit traffic movement to take place under varying weather conditions.	Upon completion of the course the participant will be able to: 1. State the goals of your Districts winter weather response program. 2. Explain your Districts level of service for winter weather response. 3. Prepare for the winter weather season relative to materials, equipment, and training. 4. Describe how the winter weather materials used in your District affect snow and ice. 5. List the equipment used for winter weather response in your District. 6. Calibrate material spreaders and related equipment used for winter weather response. 7. Identify the safety practices and procedures associated with winter weather response.	12
MNT813	Winter Weather Management Training	Winter Weather Management Training is a workshop designed to assist District maintenance and supervisory personnel to more effectively address the issues and challenges associated with responding to winter storms.	Upon completion of the course the participant will be able to: 1. Update the District snow and ice control plan. 2. Explain the State Wide Plan for Winter Maintenance Operations. 3. Organize the emergency response necessary to manage a winter storm. 4. Apply weather data to winter maintenance decision making. 5. Explain how snow and ice chemicals are key to proactive winter maintenance. 6. List ways to optimize equipment for winter maintenance applications. 7. Plan for the winter season relative to material, equipment, and personnel. 8. Utilize best practices for winter operations before, during, and after the storm.	6
MNT819	Principles and Practices for Enhanced Maintenance Management Systems FHWA-NHI-134112	This blended training course (independent study and web conferences) introduces the methods and practices used in an enhanced maintenance management system (MMS) to effectively maintain and operate a highway network.	Upon completion of the course the participant will be able to: 1. Compare and contrast a first generation MMS with an enhanced MMS 2. Describe the terms "outcome-based" and "performance-based" and how they pertain to an enhanced MMS 3. Describe the use of service levels to support the programming and budgeting activities incorporated into an MMS 4. Identify the types of systems that should be integrated with an MMS and provide several examples of the types of data that should interface between each system 5. List the potential benefits to be realized by fully integrating an enhanced MMS 6. Identify several steps that will advance an agency's current maintenance management practices now and in the future	6
MNT820	Introduction to Transportation Asset Management with Workshop FHWA-NHI-136106A	This course that covers the principles of TAM and introduces the core questions every agency should be able to answer about its assets.	Upon completion of the course, participants will be able to: 1. Champion the use of asset management principles and concepts within the organization 2. Define their role in supporting the agency's asset management efforts 3. Identify the strengths and weaknesses of your agency's asset management program 4. Identify strategies for advancing your agency's use of asset management principles	12
MNT821	Developing a Transportation Asset Management Plan FHWA NHI-136106B	The course combines a brief (1-hour) Web-based training prerequisite with a 1.5-day instructor-led session to introduce the role of the Transportation Asset Management Plan (TAMP) as a planning, communication, and accountability tool.	Upon completion of the course, participants will be able to: 1. Champion the use of asset management principles and concepts within the organization 2. Define their role in supporting the agency's asset management efforts 3. Identify the strengths and weaknesses of your agency's asset management program 4. Identify strategies for advancing your agency's use of asset management principles	12

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Course Code	Course Title	Description	Objectives	Duration (in hours)
MNT903	Pathview Training	PathView training will be provided by Pavement data collection vendor Pathway. The purpose of the training is introduced the PathView software and provide hands-on experience on how to use the software to review pavement distresses pathway reported	Upon completion of the course the participant will be able to: 1. Independently review pavement distresses reported by Pathway	6
MTD100	TxDOT Materials Academy 5 Week Workshop	This five week course will provide in depth applied knowledge in highway engineering materials & quality control. Topics include soils & foundations, sampling & statistics & aggregates.	Upon completion of the course, participants will be able to: 1. Identify and describe the characteristics and engineering properties of the materials utilized in highways; 2. Identify and describe the selection and important design properties of highway materials; 3. Describe the important steps and considerations in the mix design procedures; 4. Develop an effective materials acceptance plan; 5. Describe the field and laboratory testing procedures and the significance of the test results, along with their relationship to laboratory designs; and 6. Describe the issues and trends of importance to TxDOT materials engineering personnel.	160
MTD101	TxDOT Materials Academy Executive 2 Week Workshop	This two week course will provide applied knowledge in highway engineering materials & quality control. Topics include soils & foundations, sampling & statistics & aggregates.	Upon completion of the course, participants will be able to: 1. Identify and describe the characteristics and engineering properties of the materials utilized in highways; 2. Identify and describe the selection and important design properties of highway materials; 3. Describe the important steps and considerations in the mix design procedures; 4. Develop an effective materials acceptance plan; 5. Describe the field and laboratory testing procedures and the significance of the test results, along with their relationship to laboratory designs; and 6. Describe the issues and trends of importance to TxDOT materials engineering personnel.	64
MTD200	ACI Strength Testing Technician, Review and Certification	ACI Strength Testing Technician review and certification session. Includes concrete test methods ASTM C617, C1231, C39, and C78.	Upon completion of the course, participants will be able to: 1. Perform the following concrete tests: bonded caps for strength testing (ASTM C617), unbonded caps for concrete compressive strength (ASTM C1231), compressive strength of cylindrical specimens (ASTM C39), and flexural strength of concrete beams (ASTM C78).	8
MTD201	ACI Field Testing Technician - Grade I, Review and Certification	ACI Field Testing Technician - Grade I review and certification session. Includes concrete test methods ASTM C1064, C172, C143, C138, C231, C173, and C31.	Upon completion of the course the participant will be able to: 1. Perform the following field concrete tests: temperature (ASTM C1064), sampling (ASTM C172), slump (ASTM C143), unit weight (ASTM C138), air content by pressure method (ASTM C231), air content by volumetric method (ASTM C173), making and curing concrete test specimens (ASTM C31).	16
OPI100	Effective Public Involvement	This course is designed to teach district staff new and innovative ways to involve and engage citizens in early, continuous, transparent and effective access to the state's transportation planning and implementation process.	Upon completion of the course the participant will be able to: 1. Greater understanding why public involvement is important. 2. Describe the elements of successful public involvement. 3. Plan, coordinate and conduct effective public involvement efforts. 4. Use innovative techniques to include under-represented interest groups in the transportation planning process. 5. Prepare and accurately record citizen input, provide feedback reflecting concerns on project development. 6. Work with individuals and citizen groups to mediate/resolve conflict and develop projects for the overall public good.	8

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PLN210	Plan Work Zone Trf Control	Covers evaluation & use of traffic control plans (TCP) or typical applications (TA) for different scenarios. Includes edge drop off, mobile operations, crack seal, guard rail replacement, incident management & night work.	Upon completion of the course, participants will be able to: 1. Explain the work zone evaluation process. 2. Describe the difference between NCHRP Report 475 and NCHRP Report 476. 3. Explain the purpose of Q-DAT. 4. Apply the appropriate TCP or TA for routine work zone traffic control operations. 5. Discuss why a TCP or TA may require an adjustment. 6. Discuss when an engineer's approval is needed.	16
PLN216	Geospatial Inventory Database (GRID)	Introduction to GRID training. Course must be completed prior to GRID access being granted.	Introduction to GRID training. Course must be completed prior to GRID access being granted.	16
PLN300	Planning Grant Management Training FHWA	This training provides instruction and interactive discussion on the Federal-aid Highway Program (FAHP), highway funding, and the Uniform and Programmatic requirements associated with administering FHWA planning grants/projects and work programs.	Upon completion of the course the participant will be able to: 1. Identify and explain key terms, concepts, and definitions 2. Understand how FHWA programs are structured and funded 3. Describe the requirements of stewardship and oversight and sub-recipient monitoring 4. Identify FHWA/FTA funding sources used for transportation planning 5. Explain eligible uses of FHWA planning grants 6. Explain State DOT and MPO roles and responsibilities in managing FHWA planning grants; 7. Describe how the Uniform Administrative Requirements (2 CFR Part 200) apply to the administration and management of FHWA planning grants (e.g., cost principles, procurement standards, and audits) 8. Apply training concepts and principles in classroom discussions and exercises.	16
PLN302	Highway Program Funding FHWA-NHI-152072	This course covers the various aspects of federal-aid highway financing unique to the FHWA program. Topics include Highway Trust Fund, legislation, apportionment process, obligation limitation, allocations, deductions, earmarking & transferability.	Upon completion of the course the participant will be able to: 1. Describe the flow of Federal financing from authorization to reimbursement. 2. Explain authorization, appropriation, apportionment, allocation and obligation limitation. 3. Discuss the impact contract authority and obligation limitation have on the use of Federal funds. 4. Explain how the Federal budgetary process applies to the Federal-aid Highway Program. 5. Describe the significance of the Highway Trust Fund to the funding levels for the Federal-aid Highway Program.	12
PLN304	Introduction to Urban Travel Demand Forecasting FHWA-NHI-152054	An introduction to the traditional four-step modeling process of trip generation, trip distribution, mode choice & trip assignment. Includes presentations on land use inputs, network & zone structures, time of day factoring & reasonableness checking.	Upon completion of the course the participant will be able to: 1. Describe the role of travel forecasting within transportation planning. 2. Explain the principles of the four-step model: trip generation, trip distribution, mode choice, and trip assignment. 3. Demonstrate how input data is used in each step of the four-step model. 4. Identify reasonableness checks for model inputs, outputs, and equations. 5. Interpret the outputs from each step.	32
PLN306	Using AASHTO Audit Guide: Development of AE Consult Indir Cost Rates FHWA-NHI-231029	This course is of interest to a wide variety of practitioners who want to be able to apply the AASHTO Audit Guide in the development and administration of A/E design consultant direct and indirect costs and rates.	Upon completion of this course the participant will be able to: 1. Employ appropriate requirements, concepts, and tools necessary to develop and apply indirect cost rates to A/E contracts. 2. Describe the required components of compliant internal controls. 3. Prepare an appropriate analysis necessary to demonstrate the reasonableness of compensation. 4. Interpret and apply Federal and State laws, regulations, policies and procedures. 5. Explain various components of the external oversight framework including ethics, dispute resolution, and the FHWA function. 6. Compare and distinguish between contract types and implications on account costing and billing.	16

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Course Code	Course Title	Description	Objectives	Duration (in hours)
PLN307	Using AASHTO Audit Guide: Audit and Oversigh of AE Consul Indirect Cost FHWA-NHI-231030	The course focuses primarily on audit requirements and procedures designed to develop reasonable assurance that indirect cost rates are developed in accordance with applicable Federal regulations and guidance.	Upon completion of the course the participant will be able to: 1. Perform audit functions related to the planning, performance, or oversight of A/E consultant indirect cost rate audits. 2. Determine and attest to A/E consultant compliance with applicable guidance and/or requirements. 3. Discuss how State DOTs will use the CPA Workpaper Review Program (AASHTO Audit Guide Appendix A) to evaluate audits performed by CPAs. 4. Identify and apply appropriate audit tools and techniques as specified in the AASHTO Audit Guide. 5. Describe the components of a complete audit report and how to evaluate the report presentation. 6. Describe various components of the State DOT's oversight and risk management framework. 7. Describe at a high level the FHWA's roles and responsibilities in its stewardship and oversight of Federal-Aid funds related to procurement of A/E design services and administration of related agreements.	16
PMD103	Introduction to Primavera P6	This course is an introduction Primavera P6 project scheduling software. This course will teach how to use the software, best practices and use of software to TxDOT policies and procedures.	Upon completion of the course the participant will be able to: 1. Demonstrate the proper method to set user settings using Oracle Primavera P6 software. 2. Demonstrate the process of P6 schedule creation using a template or a blank schedule using Oracale Primavera P6 client. 3. Demonstrate defining, assigning, and updating a Work Breakdown Structure and schedule Activity elements of a schedule. 4. Describe the process of using TxDOT low and medium rigor templates in creating project schedules in Primavera. 5. Understand the process of Progressing the Schedule Using the Manual Method. 6. Prepare and review project reports to monitor project progress. 7. Identify the process and location of getting help when needed.	12
PMD104	Transportation Scheduling Management Through Project Development	This interactive class will use transportation exercises to explore, identify, and apply transportation project schedule management practices utilizing TxDOT scheduling guidance material.	This hands-on transportation scheduling class will engage and challenge participants. Participants will learn scheduling recovery and scheduling advancing techniques, how to correct scheduling errors, how to use a schedule as a management tool, how TxDOT schedules affect many reporting systems, and in-depth baseline exercise, linking schedules, and a few other topics to assist TxDOT project managers deliver successful transportation projects. Objectives: 1. Interpret key scheduling definitions and usage of the TxDOT Schedule Guide and Schedule Maturity Guidance with application to transportation project scheduling 2. Comprehend the impact of scheduling management techniques and relation to other TxDOT reporting systems 3. Illustrate the purpose of a project schedule as a management tool and communication tool 4. Analyze and apply schedule management and schedule maturity techniques and practices 5. Solve transportation project scheduling challenges and capitalize on opportunities	8
PMD105	Project Management Discipline Workshop	Delivers an overview of PPM's project management tools, techniques/processes & offers a deeper dive on how to use them. Provides an opportunity to increase project management skills and specifically help in the management of transportation projects.	Upon completion of the course the participant will be able to: 1. Clearly identify the correct project management tools, techniques/processes to use in the various phrases of a transportation project 2. Understand the process groups and knowledge areas built around PPM Matrix	6

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PMD106	Field Agent Workshop	On boarding workshop to provide PPM Field Agents (FA) with detailed instruction of PPM's project management tools, best practices and project management processes. Identifies the FA role, responsibility, and procedures when working with Districts.	Upon completion of the course the participant will be able to: 1. Clearly define the FA goals 2. Understand PPM's tools, processes and techniques 3. How to build and maintain relationships with the districts	24
PMD108	Construction Contract Time Determination for Transportation Projects Using P6	This course provides guidance in determining construction contract time estimates using P6 in pre-construction project phases.	Upon completion of the course the participant will be able to: 1. Discuss the value of creating an accurate contract time determination (CTD) 2. Understand current TxDOT guidance on CTD 3. Develop a CTD in P6 with or without a contract time estimate (CTE) spreadsheet 4. Interpret published TxDOT production rates and supplement with additional sources of information 5. Identify project constraints and their impacts to production rates 6. Communicate the importance of calendars, appropriate activities, production rates and relationships 7. Publish the CTD and extract the contract time 8. Prepare the CTD narrative	4
PMD109	Construction Schedule Review for Transportation Projects Using P6	This course provides guidance in reviewing construction schedules using Primavera P6.	Upon completion of this course the participant will be able to: 1. Discuss the components of a thorough schedule review 2. Apply current TxDOT specifications for construction schedules 3. Evaluate an initial schedule 4. Analyze progress updates 5. Identify issues to be addressed	4
PMD120	Project Scope Management	This interactive class will use case studies and exercises to delve into how to define project scope, collect project requirements, verify scope, and control scope throughout the project lifecycle.	Upon completion of the course the participant will be able to: 1. Discuss the use and value of scope management 2. List the essential requirements to develop a project scope 3. Tailor and apply a Scope Definition Document for each phase of the project lifecycle 4. Manage changes to project scope and recognize the impacts of scope change to all areas of project development 5. Communicate the Scope Definition Document and scope changes to stakeholders	4
PMD140	Risk-Based Construction Cost Estimating	This course will introduce the attendee to the Risk-Based Cost Estimating foundational knowledge and practice related to estimating construction costs.	Upon completion of this course the participant will be able to… 1.Understand its use and approach for the Risk-Based Construction Cost Estimating framework and process 2. How one can tailor and apply the various aspects of this framework for each phase of the project life cycle 3. Gain an understanding of what is in the Risk-Based Construction Cost Estimating tool kit 4. Establish a common vocabulary across the teams around Risk-Based Construction Cost Estimating	4
PMD141	Three-Point Estimating (Time, Quantity, and Cost)	The goal of the class is to increase estimating accuracy and consistency. This class will explore time, quantity, and cost estimating utilizing the three-point estimating method through practical application with a series of hands-on exercises.	Upon completion of the course the participant will be able to: 1. Discuss the use and value of 3 Point Estimating 2. List industry estimation best practices 3. Apply the 3 Point Estimating Process using confidence levels 4. Develop a 3 point estimate for project times/durations (resource hours) 5. Develop a 3 point estimate for project quantities 6. Develop a 3 point estimate for project cost estimates	3

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PMD151	Transportation Project Risk Management	This interactive class will use TxDOT transportation case studies and exercises to delve into developing, identifying,analyzing, managing, and communicating a transportation project risk management plan throughout the project lifecycle.	Upon completion of the course the participant will be able to: 1. Using TxDOT transportation project case studies,develop Transportation Project Risk Management Plan through a series of team exercises 2. Demonstrate risk management techniques throughout TxDOT project lifecycle 3. Communicate and understand how to apply a Transportation Project Risk Management Plan Participants will explore risk collection techniques and how to identify, analyze,treat, and communicate risks through a series of hands-on TxDOT transportation exercises.	4
PMD200	Design Build Program Training	Presentation of the fundamental concepts required to implement Design-Build projects forTxDOT. The course will describe the organizations/interfaces expected for this work, explain differences between Design-Bid-Build and Design-Build projects.	Upon completion of the course the participant will be able to: 1. Define the key elements of the partnering process. 2. Describe the foundation and framework for development, procurement and implementation of DB projects by TxDOT. 3. Describe the project organization and the roles and responsibilities of TxDOT and the Design-Builder 4. Demonstrate the importance of a PMP to the success of a DB project 5. Recognize Federal regulations and requirements for Quality Assurance for Design Build projects 6. Identify the differences between DBB and DB projects with respect to ROW Acquisition,Utility Coordination and Adjustment and Environmental Compliance and Permitting 7. Recognize the complexities and risks of accelerated project delivery	16
PMD210	PMP Certification Boot Camp	This is a test-prep course. Only people who have an approved PMP application should sign up. It is an intensive review of information from the PMBOK 6th edition. Participants should bring their PMBOK and laptop to class.	Upon completion of this course, participants will be able to : 1. Understand PMBOK 10 Knowledge Areas 2. Understand PMBOK 5 Process Groups 3. Identify and describe 49 project management processes 4. Analyze project management scenarios 5. Apply selected formulas to given scenarios	40
PMD300	Transportation Project Management at TxDOT	This interactive class will use transportation project exercises to explore day-to-day project management activities to assist TxDOT Transportation Project Managers deliver successful transportation projects.	Upon completion of this course the participant will be able to: 1. Understand and communicate the project manager and project team roles and responsibilities for a transportation project. 2. Examine project team effectiveness, how to lead project teams, defining team expectations, and dealing with crisis and change management 3. Discover project management communication techniques such as progress reporting, internal and external project team members, defining project expectations, and stakeholder communication 4. Demonstrate communication techniques through a series of class exercises 5. Apply project management tools during class exercises This class will focus on project managers and project management teams to deliver successful transportation projects. Using a series of class exercises, students will identify project management challenges and learn methods and tools to manage those challenges. Also, participants will work in project teams and analyze transportation projects to determine tools and techniques to lead project teams, manage stakeholders, resource management and allocation, time management techniques, and analyzing risk and scheduling impacts to the portfolio.	6
QLT100	Lean and Six Sigma	The five day course will provide a foundational methodology, as well as the necessary Quality Tools that you can apply and improve TxDOT's future state. This course will also prepare you for the American Society for Quality (ASQ) Yellow Belt exam.	Upon completion of the course the participant will be able to: 1. Apply quality, lean, and six sigma principals in the workplace 2. Pass the American Society for Quality (ASQ) Yellow Belt exam	36

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QLT101	Continuous Improvement Fundamentals	Provides an introduction to Continuous Improvement concepts at TxDOT. After this course, you will be able to understand and apply quality, lean, and continuous improvement principles in the workplace.	Upon completion of this course the participant will be able to: 1. Explain what Continuous Improvement is and how it relates to our work 2. Define common concepts related to Continuous Improvement like Lean, Six Sigma, Quality Management, and “QA/QC” 3. Identify where Continuous Improvement is already found in the workplace and operations 4. Explain the Cost of Quality concept and how it relates to Continuous Improvement 5. Recognize common Continuous Improvement tools, methods, and visualizations 6. Locate resources to support Continuous Improvement projects 7. Identify a process or a product that would benefit from Continuous improvement 8. Apply a tool to a current process or product that would benefit from Continuous Improvement	8
ROW100	Identifying and Managing Utility Conflicts (R15B)	A critical factor that contributes to inefficiencies in the project development & delivery process is the lack of adequate information about the location & other characteristics of utility facilities that might be affected by a transportation project.	Upon completion of the course the participant will be able to: 1. Understand relevant concepts related to the management of utility conflicts within the project development and delivery process. 2. Understand the process to develop and maintain a UCM using data from a sample project. 3.Understand the types of reporting options available when using a database representation of the UCM. 4.Understand utility conflict data model and database capabilities. 5.Understand the process to develop and use customized queries and reports. 6.Identify utility conflicts on sample project design drawings. 7. Use UCMs to manage utility conflicts.	7
ROW101	TxDOT Utility Coordination	The TxDOT Utility Coordination course will provide participants with the foundational knowledge and understanding of the TxDOT Utility Accommodations process. Participants will also be exposed to practical application of useful tools and resources.	Upon completion of the course the participant will be able to: 1. Reference applicable rules, regulations, policies, and procedures 2. Identify and coordinate utility conflicts 3. Understand the different types of agreements 4. Develop agreement and billing packages 5. Monitor the utility project progress 6. Update the appropriate data systems with utility information	11
ROW201	Advanced Relocation under the Uniform Act FHWA-NHI-141030	Beyond the basics of relocation assistance; focusing on mortgage differential payments, settlement costs, partial acquisitions, comparability, last resort housing, multiple use, tenants & nonresidential moves. Must 1st complete NHI #141029 & #141045.	Upon completion of the course the participant will be able to: 1. Explain the principles that govern relocation provisions of the Uniform Relocation and Real Property Acquisition Policies Act of 1970 (Uniform Act) and implementing regulations. 2. Describe at least three factors involved in difficult relocation subject areas. 3. Describe issues that may arise when developing advisory assistance plans for difficult relocation areas. 4. Determine eligibility for certain relocation payments in difficult relocation cases. 5. Determine challenging issues when calculating complex nonresidential moving costs. 6. Calculate complex nonresidential moving costs.	24
ROW202	Basic Relocation under the Uniform Act FHWA-NHI-141029	Designed for a beginning relocation agent or those interested in basic knowledge of the Uniform Act of 1970. Covers functional areas of the relocation asst program, with emphasis on residential displacements from a Federal or Federally-funded project.	Upon completion of the course the participant will be able to: 1. Explain the principles of the Uniform Act and implementing regulations 2. Describe the Uniform Act planning requirements 3. Describe an agency's advisory services responsibilities 4. Describe the elements of comparable replacement housing 5. Calculate replacement housing payments for owners and tenants 6. Explain replacement housing of last resort 7. Compute residential and non-residential moving costs	24
SFH003	New Employee Safety Orientatio	This course provides an overview of the Mission Zero Safety Initiative at TxDOT. Various resources are detailed to aid employees in their on-going safety.	Upon completion of the course the participant will be able to: 1. Explain how safety is part of the Mission and Goals of the dapartment. 2. Describe the department's safety policy. 3. Identify the sections of the Occupational Safety Division. 4. Identify resources for safety information. 5. Identify items in case of emergencies. 6. Describe key elements of the department's occupational safety program.	3.5

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SFH004	NEO Safety Brief Part 2-Local	New Employee Safety Orientation Part 2. Local Safety officer/coordinator will conduct a safety orientation for approximately two or more hours. Topics of discussion will be TxDOT policies and procedures with emphasis on local safety programs.	Upon completion of the course the participant will be able to: 1. Discuss local safety policies and procedures. 2. Explain vehicle safety procedures and best practices. 3. Demonstrate proper lifting techniques. 4. Locate safety resources in various forms (printed, electronic, on-line). 5. Explain the importance of situational awareness when working in field operations.	2
SFH020	Civilian Response to Active Shooter Events - C.R.A.S.E	The Civilian Response to Active Shooter Events (CRASE) course, designed and built on the Avoid, Deny, Defend (ADD) strategy developed by ALERRT in 2004, provides strategies, guidance and a proven plan for surviving an active shooter event.	Upon completion of the course the participant will be able to: 1.Develop an understanding of what to do in the event of an active shooter situation.	4
SFH030	Safety Summit for Divisions	Safety Summit for Division employees.	Upon completion of this course the participant will be able to: 1. Identify top safety strategies to improve and drive the TxDOT safety culture, processes, and programs for the upcoming three years.	4
SFH110	Confined Space Safety	Course covers OSHA 1910.146, TxDOT standards, & OSHA 1910.47. Material covers identifying a confined space, recognizing hazards, atmospheric testing, entry permiting, & lockout/tagout.	Upon completion of the course the participant will be able to: 1. Identify permit-required confined spaces. 2. Recognize and evaluate hazards of confined spaces. 3. Describe lockout/tagout steps to control an energy source. 4. Calibrate and operate an air monitor. 5. Complete Form 1993 and describe the process required for entry into confined spaces. 6. Conduct a briefing using the Confined Space Permit and Checklist.	12
SFH205	OSHA 502 CST Trainer Update	OSHA 502 Update for Construction Industry Outreach Trainers is designed for Outreach Training Program trainers who have completed OSHA #500 Trainer Course in Occupational Safety and Standards and Health Standards for the Construction Industry.	Upon completion of the course the participant will be able to: 1. Demonstrate continued professional development in their field; 2. Apply effective adult learning principles and interactive training techniques; 3. Identify, define, and explain construction industry hazards and acceptable corrective measures; 4. Teach the 10 and 30 hour Construction Outreach Training Program classes.	20
SFH210	Hazwoper For Clean Up Operations	Course covers classification, detection, and monitoring of hazardous materials, the use of PPE, and safety practices. Many hands-on exercises and simulations which reference 40CFR311.1, 29CFR1910.120(e), RCRA, & CERCLA.	Upon completion of the course the participant will be able to: 1. Recognize and evaluate hazards; 2. Apply toxicology and exposure guidelines; 3. Use field monitoring instruments and practical exercises; 4. Explain the importance of site entry and site control; 5. Describe protective clothing and levels of protection; 6. Explain air purifying respirators and self-contained breathing apparatus; 7. Describe decontamination procedures; and 8. Participate in hazardous material incident scenarios and simulations.	40
SFH215	Hazwoper Refresher	Annual refresher for employees in hazardous waste clean-up operations. Provides updates on classification, detection & monitoring hazardous materials, the use of PPE, & safety practices.	Upon completion of the course the participant will be able to: 1. Identify any changes or amendments to the regulations, describe the training requirements listed in the regulations for those personnel involved in waste site operations. 2. Define physical hazards, chemical hazards, and explain terms (flash point, flammable range, boiling point and other physical and chemical characteristics) in determining hazards at waste site operations. 3. List the four most common routes of exposure from hazardous materials, list factors that may influence toxicity and describe the use of exposure guidelines in waste site operations.	8

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SFH301	Asbestos Awareness and Compliance Training	This course covers the hazards associated with asbestos exposure, preventive measures, notification requirements, applicable SDHS rules, policies and procedures for investigation, removal and record retention requirements for facility ACM and O&M plan.	Upon completion of the course the participant will be able to: 1. Know health hazards associated with ACM, 2. Know sources for various federal and state ACM rules and regulations applicable to TxDOT, 3. Know responsibilities for existing facility ACM notification and incident mitigation, 4. Know what constitutes an acceptable asbestos survey, 5. Know when an SSD activity can be utilized, 6. Know what documentation must be submitted and retained, 7. Know how to assess condition of existing ACM.	8
SFH305	OSHA 503 Gen Industry Trainer Update	Designed for Outreach Training Program trainers who have completed course #501 Trainer Course in Occupational Safety and Health Standards for General Industry and who are authorized trainers in the OSHA Outreach Training Program.	Upon completion of the course the participant will be able to: 1. Demonstrate continued professional development in their field; 2. Apply effective adult learning principles and interactive training techniques; 3. Identify, define, and explain general industry hazards and acceptable corrective measures; 4. Teach the 10 and 30 hour General Outreach Training Program classes.	20
SFH397	Electrical Safety-Qual Person	Arc flash and shock hazard for maintenance personnel. Provides training on NFPA 70E Article 130 to personnel who are required to examine, adjust, service, or maintain electrical equipment while it is energized.	Upon completion of the course the participant will be able to: 1. Describe NEPA 70E Standard for Electrical Safety in the Workplace; 2. Identify electrical hazards in the workplace; 3. Identify ways to reduce or eliminate employee exposure to electrical arc flash and electrical shock hazards.	4
SFH401	Focus on Safety IV	Course covers TxDOT specific safety topics and required OSHA topics identifying hazards in the workplace & prevention of unsafe work practices. After successful completion, an OSHA 10-hour construction card is issued.	Upon completion of the course the participant will be able to: 1. Describe the TxDOT Safety Process and utilize the process in daily operations to prevent unsafe work practices. 2. Recognize work zone hazards and the appropriate measures to ensure a safe work environment. 3. Recognize safe work practices near rail operations. 4. Recognize fall hazards and methods to prevent falls. 5. Identify stairway and ladder safety measures. 6. Recognize safe trenching and excavation measures. 7. Discuss safe material handling. 8. Identify safe work practices to prevent caught-in or between and struck-by hazards in construction. 9. Recognize appropriate personal protective equipment (PPE) for specific work situations. 10. Explain the potential for electrocution on a construction site.	8
SFH405	OSHA 510 Construction Industry	OSHA 510 Occupational Safety & Health Standards for the Construction Industry covers scope & application of OSHA construction standards, policies & procedures. As well, construction principles with emphasis on hazardous areas.	Upon completion of the course the participant will be able to: 1. Define general industry terms found in the OSHA Construction Standards. 2. Identify hazards which occur in general industry. 3. Locate and determine appropriate OSHA Construction Standards, policies, and procedures. 4. Describe the use of OSHA Construction Standards and regulations to supplement an ongoing safety and health program.	30

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SFH410	Small Quantity Spill Response	Course covers the necessary information for safe responces to small spills of toxic materials in TxDOT laboratories or workplace situations.	Upon completion of the course the participant will be able to: 1. Identify the chemical and physical properties of hazardous materials, and their importance in small spill response. 2. List the routes by which toxicants may enter the body, and what damage can be done once present. 3. Identify personal protective equipment commonly used in a small spill response. 4. Discuss the data necessary to successfully aid in the analysis of the risk and procedures for an initial response to a small spill. 5. Explain the OCC spill "clean up requirements" needed to contain a small spill. 6. Identify the various types of fire extinguishers that may be used in a small spill response. 7. Identify the steps used to minimize the spread of hazardous materials during clean-up. 8. Demonstrate proper donning and doffing of personal protective equipment (gloves) so as to reduce the spread of any hazardous materials.	8
SFH411	Oil Spill Clean-Up	Educates workers assisting with oil spill clean-up on the clean-up process & the potential hazards from oil by-products, dispersants, detergents, degreasers, drowning, heat illness, insects, snakes and other wild species native to the impacted areas.	Upon completion of the course the participant will be able to: 1. Explain what an oil spill is 2. Recognize the characteristics of oil and the risks associated with oil spills 3. Describe the characteristics of a spill response 4. Describe how to identify and control hazards during the response and clean-up phases of an oil spill 5. Explain the role of a worker assisting with an oil spill clean-up.	4
SFH419	Qualified Fire Extinguisher Inspection	Training for qualified inspectors of fire extinguishers for state buildings & property per standards of the Office of State Fire Marshal of Texas. Covers monthly & yearly inspections & maintenance of portable fire extinguishers per NFPA 10 standards.	Upon completion of the course the participant will be able to: 1. Demonstrate how to perform monthly and yearly inspections per State Fire Marshal Rules; 2. Complete required inspection tags; 3. Use acronyms and explain simple definitions of terms relating to fire extinguisher inspections; 4. Explain the requirements of NFPA 10; 5. Explain the basic requirements of CFR 173. 34,309; 6. Explain the documentation requirements for fire extinguishers; 7. Complete an exam with a minimum score of 70 percent.	4
SFH431	Maritime Security Awareness	Meets IMO requirements for personnel having specific security duties & other personnel that should have sufficient knowledge & ability to perform assigned duties & be familiar with the responsibilities of the Security Plan regarding Ferry operations.	Upon completion of the course the participant will be able to: 1. Identify acronyms, terms and language related to maritime security 2. Recognize, identify and respond to security threats 3. Describe PTEs and explain how it relates to targets of opportunity within the maritime community 4. Explain the codes, laws, guidelines, and policies as it applies to maritime security 5. Explain the purpose of a security plan 6. Identify the security levels 7. Conduct a Security Assessment 8. Respond to training, drills and exercises in the same manner as a real event 9. Explain the purpose of security administration.	6
SFH432	Company/Ship Security Officer	The course is designed to exceed the IMO Model Course requirements for those who may be designated to perform the duties and responsibilities of a Company Security Officer or a Ship Security Officer as defined in the ISPS Code.	Upon completion of the course the participant will be able to: 1. Define terms, acronyms, and language respective to Maritime Security 2. Describe the basic motivations of Potential Threat Elements (PTEs) 3. Site appropriate codes, laws, guidelines, and pollicies applicable to maritime security 4. Recognize, identify, and respond to security threats 5. Identify objectives of a sound security system, equipment and methods of detecting and restricting access to a secure area 6. Explain the purpose of a security plan 7. Respond promptly according to security level 8. Perform security administration.	20

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SFH433	OSHA 500 OSH Stds for Construction	OSHA 500-Occupational Safety & Health Standards for the Construction Industry details how the OSHA Act may be implemented on the jobsite. Successful completion of the course authorizes individuals to present 10 & 30 hour OSHA training for construction.	Upon completion of the course the participant will be able to: 1. Demonstrate knowledge of safety and health regulations used in most American workplaces, specifically construction environments; 2. Identify safe work procedures at TxDOT; 3. Reference OSHA regulations in TxDOT documents; 4. Conduct training sessions on OSHA and provide students with wallet cards indicating completion of this training.	30
SFH501	Forklift Refresher Training	Three year performance recertification. A qualified forklift instructor reviews operators safe forklift operation and maneuvering skills and documents on OCC Form 2348.	Upon completion of the course the participant will be able to: 1. Demonstrate the operation of a forklift using proper safety methods.	1
SFH502	Forklift Train-the-Trainer	Using National Safety Council Forklift training materials, topics include the presentation of material on pre-inspection, forklift truck design, worksite inspections, picking up a load, delivering a load & safe operation of a forklift.	Upon completion of the course the participant will be able to: 1. Teach initial forklift training to employees who have never driven a forklift; 2. Conduct recertification training for current forklift operators.	8
SFH504	Forklift Safety Awareness	Includes the qualification of a forklift operator by completion of EL1022 and successful demonstration of driving & maneuvering proficiency on a forklift.	Upon completion of the course the participant will be able to: 1. Explain the stability triangle of a forklift and the principle of a load and counter-balance; 2. State the key operational features of a standard motorized material handling equipment; and 3. Demonstrate basic driving, steering, braking, maneuvering and forklift tasks involving lift truck controls.	8
SFH505	OSHA 511 for General Industry	A prerequisite for OSHA 501, OSHA 511 Occupational Safety and Health Standards for General Industry covers OSHA standards, policies, and procedures in general industry with emphasis on hazardous areas.	Upon completion of the course the participant will be able to: 1. Define general industry terms found in the OSHA General Industry Standards. 2. Identify hazards which occur in general industry. 3. Locate and determine appropriate OSHA General Indusry Standards, policies, and procedures. 4. Describe the use of OSHA General Industry Standards and regulations to supplement an ongoing safety and health program.	30
SFH519	Introduction to Crash Attenuator Vehicle Operations	This training was developed for TXDOT operations utilizing truck mounted attenuators (TMA). This course is based on TXDOT Policies and guidance got these operations and is intended to provide a basic understanding of TMAs and safety for TMA drivers.	Upon completion of this course participants will be able to: 1. Understand and define the qualification of the attenuator driver. 2. Understand and define your responsibility as a attenuator driver. 3.Uderstand and define the role of the attenuator vehicle and be able to define its purpose. 4. Understand what "roll-ahead" distance is and when you should adjust those distances. 5. Understand the deference between stationary and mobile TMA operations. 6. Understand placement of the TMA in the work zone.	4

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SFH520	Surveying Safety on the ROW	This course is designed to be taken in conjunction with TRF520 Work Zone Traffic Control. This course fulfills the safety orientation portion required of all persons who will be working on survey crews on the Right of Way (ROW).	Upon completion of the course the participant will be able to: 1. Describe the generalconditions of heat stress, disorders assocaited with heat stress and preventative measures. 2. Explain the steps to protect oneself from sun exposure while working on the ROW 3. List all Personal Protective Equipment (PPE) required to work on the ROW and proper use of PPE, knolwledge of OCC requirements on PPe 4. Describe the steps to avoid snake bite and immediate medical actions required if bitten 5. Explain the level of awareness required to avoid insect bites, potential reactions to bites and preventative measures 6. Explain the level of awareness required to detect poison ivy, avoidance of, and first aid requirements to treat exposure 7. Describe the importance of proper Work Zone Taffic Control during survey opertions, site planning, how to engineer out unnecessary risks 8. Explain the special provisions and requirements to operate safely when operating on a railroad ROW 9. Explain the special provisions and requirements to operate safely when operating on utility ROW's.	2
SFH610	Excavation & Shoring Safety	This course provides an overview of the OSHA Excavation Safety Standards and state legislation in order to familiarize employees with the hazards and safety precautions for excavation and shoring.	Upon completion of the course the participant will be able to: 1. Identify soil classifications using the OSHA standards and the factors that affect soil strengths and influence cave-ins. 2. Describe safe excavation methods to include job planning, shoring, sloping, and shielding. 3. Identify hazards at excavations. 4. Discuss OSHA and state laws that affect excavations.	8
SFH710	Respirator Fit Test & Training	Respirator Fit Test & Training	Upon the end of the course the participant will be able to: 1. Identify job functions that present a potential/known respiratory hazard; 2. Explain the different options available for reducing/preventing respiratory hazard exposure to employees; 3. Demonstrate the proper way to put on/take off the respirator(s) that will be used in their job(s), respirator maintenance such as assembly of cartridges/cleaning/storage and the steps required to determine a proper fit.	1
SFH810	Fundamentals of Industrial Hygiene	In this course, you will develop an understanding of industrial hygiene terminology, principles and practices. Learn key processes of an effective industrial hygiene effort.	Upon completion of this course the participant will be able to: 1. Distinguish chemical, physical, ergonomic and biological hazards 2. Conduct an industrial hygiene needs analysis 3. Determine when to use a qualified/certified industrial hygienist 4. Understand basic anatomy and physiology associated with routes of entry and toxicology 5. Understand hazard evaluation techniques 6. Use essential monitoring equipment	32
SFH811	Principles of Occupational Safety and Health	Intensive four-day course covering 19 topics that provide a solid understanding of fundamentals of workplace safety and health. Focus on best practices for implementing and managing a safety program.	Upon completion of this course the participant will be able to: 1. How to examine prior incidents to help you avoid mistakes and maximize th effectiveness of your safety initiatives 2. Record-keeping to prevent injuries and meet OSHA requirements; 3. How to develop an emergency action plan; 4. How to plan and conduct safety inspections; 5. The impact of industrial hygiene and HazCom standards on your safety plan.	32

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SFH812	Safety Management Techniques	Learn to look at safety from a business and systems perspective. Course addresses administrative, technical and cultural issues, helping you to effectively manage projects and employees. Will gain tools and skills to enhance safety and health efforts.	Upon completion of this course the participant will be able to: 1. Identify how key elements in safety, health and management influence the organization's safety management focus 2. Identify characteristics of an effective safety management system 3. Understand the roles and responsibilities of safety professionals 4. Know the four requirements for creating a positive safety culture 5. Know strategies and steps necessary for creating individual and organizational change 6. Create an action plan to improve safety management 7. Develop skills to analyze safety and health issues from a manager's perspective and develop a plan to resolve issues	32
SFH813	Safety Training Methods	Learn how to plan, organize, create and deliver performance-based safety training that engages employees, and improves the organization's safety practices. Provides an understanding of needs analysis, performance objectives, and instructional methods.	Upon completion of this course the participant will be able to: 1. How to complete a training needs analysis 2. How to plan and design a training program applicable to your work environment 3. The five phases of the performance-based training process 4. Strategies and methods that address adult learning needs 5. How to identify training and non-training solutions for safety and health issues in the workplace 6. How to calculate direct and indirect training costs 7. Techniques for selecting, designing and using media	32
SFH814	Safety Leadership for Crew Leaders	Case studies presented to maintain and improve TxDOT's safety culture through hazard recognition exercises. Discussions held on TxDOT's best safety practices used while driving, working in work zones, PPE usage, injury and vehicle incident prevention.	Upon completion of the course the participant will be able to: 1. Sharpen skills used to identify workplace hazards, mitigate hazards and coach employees to correct those hazards. 2. Recognize proper traffic control, explain items used in Typical Applications (TA's) and traffic control plans (TCP's) 3. Identify and use information needed for leading crews to safety accomplish assign task. 4. Apply principles for effectively coaching, correcting and complimenting safe work habits and behavior 5. Identify the importance for following through the TxDOT's established safe work practices, procedures, and best safety practices. 6. Describe components essential to internal Traffic Control plans	4
SFH819	Team Safety	Learn how to create an effective safety team. Course shows how to make group safety efforts work.	Upon completion of this course the participant will be able to: 1. Recognize and use key safety and health terminology, as well as team safety concepts and techniques 2. Plan for and create an effective safety team 3. Identify training and development for team members 4. Conduct productive safety meetings 5. Help team to positively influence organization safety culture	8
SFH844	Hearing Conservation	Occupational Safety Division's course on hearing conservation.		1
SFH847	Ergonomics: Managing for Results	Learn how to reduce the number and severity of musculoskeletal injuries in the workplace.	Upon completion of this course the participant will be able to: 1. Understand the basic concepts relating to ergonomics in the workplace 2. Recognize ergonomic risk factors related to musculoskeletal disorders 3. Conduct an ergonomic worksite analysis, and evaluate and rank hazards 4. Determine various control methods and select the method best suited to the level of risk 5. Identify the steps to implement a successful ergonomics program at the workplace	8

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SFH850	Job Safety Analysis	Learn to control operating hazards and costs. Understand how to develop and manage a job safety analysis (JSA) program.	Upon completion of this course the participant will be able to: 1. Recognize and use important safety and health terminology 2. Identify the JSA's relation to continuous improvement in the organization 3. Identify key requirements for a successful JSA 4. Recognize hazards inherent in task performance, develop solutions and hazard controls 5. Complete a JSA form	8
SFH851	Safety Inspections	Get an overview of the safety and health inspection process and examine specific techniques to improve the process. Address basic skills for conducting various types of inspections and correcting identified hazards.	Upon completion of this course the participant will be able to: 1. Understand the purpose and benefits of safety inspections 2. Plan and conduct an effective safety inspection 3. Use a checklist to save time and improve inspection quality 4. Communicate results 5. Develop recommendations and follow-up on implementation 6. Set realistic goals and hold employees accountable for effective result	8
SFH852	Incident Investigation	Learn techniques to find root causes of incidents. Focus on how to gather complete, accurate, and objective incident data, establish root causes, report findings and determine corrective action.	Upon completion of this course the participant will be able to: 1. Determine which incidents warrant investigation 2. Use effective investigation and interviewing techniques to gather complete, objective and accurate data 3. Analyze incidents to identify root causes 4. Identify the human relations aspects of incident reporting 5. Determine data to include in investigation reports 6. Determine hazard control measures and follow-up	8
SFH903	Smith System Driver Training	A combination of classroom & on-the-road training for positive reinforcement & critiquing of driving skills. It will help improve individual driving records, reduce incident frequency & severity, reduce costs & ultimately help save lives.	Upon completion of the course the participant will be able to: 1. Identify their strengths and weakness as a driver; 2. Eliminate driving deficiencies; and 3. Explain the 5 keys to safe driving.	8
SFH904	Smith System Instructor Course	This course is designed to train prospective candidates who desire to teach the Smith System Driver training program and hinges on the Smith System 5 keys of safe driving techniques.	Upon completion of the course the participant will be able to: 1. Use adult learning principles; 2. Present the 5 keys to safe driving.	40
SFH905	Smith System Instructor Recert	This course is designed to re-train and refresh the skills of instructors who are teaching the Smith System Driver training program.	Upon completion of the course the participant will be able to: 1. Use adult learning principles; 2. Present the 5 keys to safe driving.	16
SFH907	Smith System Classroom Only Training	Classroom portion of Smith System Space Cushion Driving System, highlighting the 5 Keys. It will help improve individual driving records, reduce incident frequency & severity, reduce costs & ultimately help save lives.	Upon completion of this course the participant will be able to: 1. Able to articulate how Smith driving principles benefit employees on and off the job 2. Clarify how Smith System had humble beginnings & now reaches to fortune 500 companies 3. Can state the most current crash data statistics available 4. Articulate some of the most common collision factors and how to avoid them 5. Explain the three (3) main principles of Space Cushion Driving: Space, Visibility and Time 6. Explain how space cushion driving can get you home safely at the end of your day 7. Able to define and give examples of the five (5) keys of Smith Driving 8. Able to explain the most common techniques to avoid backing incidents 9. Define the three (3) types of backing approaches and the pros and cons of each 10. Able to state the five (5) Smith System keys and recap the main factors of each key	2

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SFH920	First Aid/CPR - Certified	Basic first aid and CPR training for emergency care to the injured until professional medical attention is available. After successful completion, students receive a 2 - 3 year certification card.	Upon completion of the course the participant will be able to: 1. Describe the steps to take in an emergency. 2. Recognize the signs and symptoms of a heart attack, cardiac arrest, etc. 3. Demonstrate CPR using mouth-to-mouth and mouth-to-mask technique. 4. Demonstrate how to control bleeding and immobilize a serious bone injury.	6
SFH921	First Aid and CPR/AED Instructor Certification Course	This course is designed to give participants the necessary knowledge and skills to become a successful first aid, CPR and AED instructor. It is designed to prepare you to teach first aid courses offered by the National Safety Council (NSC).	Upon completion of the course the participant will be able to: 1. Identify characteristics of successful first aid instructors 2. Identify skills of clear communication 3. Identify the teaching methods used for NSC First Aid Courses 4. Examine strategies for effectively using VSI to teach CPR 5. Identify how to handle participant questions and responses 6. Provide corrective feedback to course participants 7. Determine how o identify the needs of course participants 8. Recognize the characteristics and motivation factors of adult learning 9. Identify techniques for managing difficult course participants 10. Identify administration and evaluation procedures for both the optional written exam and skill performance tests 11. Identify methods of participant remediation 12. Evaluate CPR skill performances, AED presentations and first aid demonstrations 13. Facilitate scenarios and/or written exercises 14. Disassemble and decontaminate the manikins used to teach CPR 15. Recognize the steps of the NSC First Aid Instructor Authorization process 16. Complete appropriate administrative responsibilities for conducting National Safety Council first aid course	16
SFH922	CPR, AED, First Aid and Bloodborne Pathogens Training - Certified	This course is designed to train employees how to respond and care for medical emergencies in the workplace including information on what bloodborne pathogens are and how risks of exposure can be reduced for the employee and others.	Upon completion of this course the participant will be able to: 1. Understand when to use and perform CPR 2. Understand when an AED is necessary and how to operate 3. Understand what bloodborne pathogens are and the risks associated 4. Understand how to protect themselves and dispose of bloodborne pathogens	8
SFH933	Safety Point of Contact Trng	Overview of qualifications, duties & role of a Safety Point of Contact (SPOC). Covers safety leadership, self-inspection forms, Material Safety Data Sheets (MSDS), work zone safety, situational awareness & incident reporting forms.	Upon completion of the course the participant will be able to: 1. Define the role, duties and qualifications of a SPOC; 2. Explain the importance of safety leadership; 3. Complete safety self-inspection forms; 4. Define the MSDS process and be able to explain how to maintain a current MSDS binder; 5. Observe work zones and compare and contrast compliant and non-compliant work zones; 6. Complete incident reporting forms.	4
SPT102	Inventory Management	Covers policies and specific procedures related to inventory management including: Ordering, Receiving, Stocking, Issuing, Researching and Managing. Addresses correct entry methods for PeopleSoft, FNAV and MMS systems.	Upon completion of the course the participant will be able to: 1. Order, receive, stock, issue inventory stock items, including fuel and roadway material 2. Correctly identify which charge codes to issue out to 3. Know which system (PS, FNAV, MMS) should be used to correctly issue out inventory items 4. Effectively manage INBU inventory 5. Research problems using queries and available reports 6. Pull and understand Long Supply/Potential Surplus reports 7. Identify methods to reduce Long Supply/Potential Surplus	4
SPT200	Stockpile & Bunker Measurement Training	Stockpile Reports (SR) app is the only TXDOT approved method of measure for roadway material. INBUs are required to measure and report stockpile inventory per Policies and Procedures.	Upon completion of the course the participant will be able to: 1. Setup and access Stockpile Reports on iPhone 2. Access reports and data on vendor website 3. Correctly measure stockpiles and bunkers 4. Read and understand data reports	4

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TPD099	Transportation Program Delivery Instructor Training	The course is designed to teach instructors the essential elements of Transportation Program Delivery training classes: TPD101, TPD102, TPD103, TPD104.	Upon completion of the course, participants will be able to: 1. Facilitate and champion Transportation Program Delivery training in respective districts	4
TPD101	Overview of Project Development & Delivery at TxDOT	This course presents the standardized processes and procedures the department has in place to maximize our success in fulfilling the citizens of Texas and users of our transportation systems.	Upon completion of the course the participant will be able to: 1. Understand the many steps and their interdependencies to successfully develop and construct transportation projects. 2. Define how transportation projects are created and move through a funnel as part of a portfolio that is activity managed by each district. 3. Describe how the Performance Based Planning (PBP) facilitates project selection by funding category based upon impact to key performance measures. 4. Describe how the Quarterly Review Process (QPR) facilitates accurate tracking of each project's progress. 5. Describe how the Project Delivery & Governance (PD&G) process ensures on-time and on-budget completion of projects.	4
TPD102	Project Delivery & Governance (PD&G)	This course presents specific actions taken by division and district employees to maximize the department's success in delivering projects more quickly, on-time, and within budget.	Upon completion of the course the participant will be able to: 1. List the key guiding principles necessary for successful transportation project delivery 2. List the key stages and stakeholders in the project development & delivery process and determine their roles and responsibilities 3. Identify key decisions that affect workflow 4. Recognize interdependencies critical to stakeholders achieving key milestones on time 5. Describe how key decisions in each phase affect the path to successful project delivery TPD100 and TPD101 are pre-requisites to this course.	4
TPD103	Performance Based Planning (PBP)	This course aligns TxDOT's planning of future transportation projects with our strategic priorities.	Upon completion of the course the participant will be able to: 1. List the key stages and stakeholders in the Performance Based Planning (PBP) process 2. State key interdependencies between the PBP and the Quarterly Review Process (QRP) 3. State the 3 reasons TxDOT is using the PBP 4. Apply PBP in daily planning work at TxDOT Doing this effectively will enable the department to set planning targets which link the allocation of our funds to the impact those improvements will have on the state's transportation system. TPD100 and TPD101 pre-requisites to this course.	4
TPD104	Quarterly Review Process (QRP)	This course ties the overall TxDOT strategic goal to "Deliver the right projects," that means to implement effective planning and forecasting processes to deliver the right projects on-time and on-budget.	Upon completion of the course the participant will be able to: 1. List the key stages and stakeholders in the Quarterly Review Process (QRP) and identify roles and responsibilities 2. State key milestones throughout the four quarters of the QRP 3. Recognize stakeholder interdependencies in order to achieve key milestones 4. Apply the QRP in daily portfolio management work at TxDOT TPD100 and TPD101 are pre-requisites to this course.	4
TPD105	Project Management Workshop	The purpose of this course is to provide the employees an overview of district and/or state required policies, procedures, and best practices as they are related to design project management.	Upon completion of the course the participant will be able to: 1. Identify TxDOT district resources for the completion of required tasks and documents. 2. Understand the work flow at TxDOT districts for the design of project management. 3. Understand the expectations for the role of Design Project Manager within	8

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TPD201	Transportation Performance Management Overview for the MAP-21 and FAST Acts FHWA-NHI-138004	This course provides an overview of the Transportation Performance Management (TPM) provisions of MAP-21 and FAST, describes the responsibilities that agencies at several levels.	Upon completion of the course the participant will be able to: 1. Identify the transportation performance management provisions of MAP-21, how they are tied together, and the associated products and delivery timelines. 2. List the roles and responsibilities different agencies (Federal, state, and MPO) have in meeting the TPM requirements. 3. Describe noteworthy practices in use at other agencies that may be helpful to begin the process of implementing MAP-21 transportation performance management requirements. 4. Explain the importance of having good quality data in meeting the MAP-21 TPM provisions.	8
TPD202	Effective Target Setting for Transportation Performance Management FHWA-NHI-138012	This course explains the elements of target setting for State DOTs, MPOs, and public transit providers and focuses on how to set reasonable, attainable targets within the passage of MAP-21.	Upon completion of the course the participant will be able to: 1. Explain the value of setting appropriate and effective targets as part of performance management and within the context of current legislation 2. Describe what a target is and the importance of establishing a baseline 3. Explain the importance of collaboration in the target setting process and in the context of current legislation 4. Explain the key steps to set an effective target 5. Explain the factors involved in setting targets 6. Explain how trade-offs should be considered in determining targets between system performance areas 7. Set a target 8. Identify coordination needs in target setting 9. Identify key stakeholder roles 10. Identify key components of effective condition/performance tracking and progress assessment 11. Identify strategies to communicate target data and information effectively 12. Identify mitigation strategies for challenges related to target setting	16
TPD203	The Role of Data in Transportation Performance Management FHWA-NHI-138011	This course enables participants to manage, analyze, integrate, and use data from diverse sources to support an effective agency TPM function.	Upon completion of the course the participant will be able to: 1. Discuss the purpose and benefits of accurate and current relevant data in TPM activities 2. Describe TPM data analysis needs for system performance areas 3. Explain the elements of TPM and related business practices and the data that supports them 4. List data requirements related to use of performance projections for target setting 5. Identify common data quality issues and techniques for addressing them 6. Identify existing gaps in data quality, availability, linkage, and analysis tools that impact the ability to meet federally legislated requirements, as well as support broader agency performance management processes 7. Develop a data management and improvement plan	16
TPD304	TxDOTCONNECT Basic Navigation	This instructor led training class covers basic navigation in TxDOTCONNECT - Release 1. Topics include searching for and filtering projects, using the left-hand navigation menu, and using the location map.	Upon completion of the course the participant will be able to: 1. Log in to TxDOTCONNECT 2. Change email notification preferences 3. Search for and select a transportation project 4. Use the left navigation menu 5. Use the project location map 6. Find a field and explain its meaning 7. Describe the purpose of each page in TxDOTCONNECT	3
TPD305	TxDOTCONNECT Create and Update a Project	This course covers the processes for creating and updating a transportation project. Topics include the Project Header, Details, Location, Letting, and Goals & Objectives pages.	Upon completion of the course the participant will be able to: 1. Create a new transportation project 2. Complete all fields in the Project Header 3. Add a project location using the location map 4. Complete all fields in the Location page 5. Add or update project assets 6. Complete all fields in the Project Details page 7. Add project ancestors and descendants 8. Complete portions of the Letting page 9. Complete portions of the Goals & Objectives page 10. Submit a Resources Request 11. Submit a Letting Schedule Modification (LSM) Request	3

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TPD306	TxDOTCONNECT Funding Management	This course covers the processes for adding or updating funding lines in TxDOTCONNECT.	Upon completion of the course the participant will be able to: 1. Enter a funding line for a construction project 2. Identify the limits for number of funding lines in a project	3
TPD307	TxDOTCONNECT Letting Management	This course covers the processes for managing the letting process for a transportation project in TxDOTCONNECT.	Upon completion of the course the participant will be able to: 1. Locate critical identifiers on the Project Details page 2. Enter or update Letting dates in the Letting Schedule Details 3. Associate or disassociate a controlling project with subordinate projects 4. Enter additional Letting information on the Letting page 5. Enter or update funding lines on the Funding page 6. Review and approve a funding line 7. Enter or update Federal Authorization data on the Funding page	2
TPD308	TxDOTCONNECT ROW Project Management	This course provides an overview the processes for creating and updating a transportation project and adding funding lines in TxDOTCONNECT.	Upon completion of the course the participant will be able to: 1. Receive and respond to a ROW or Utilities Resources Request 2. Review the information on the ROW/Utilities page 3. Locate and describe each column in the Right of Way funding grid on the Funding page. 4. Demonstrate the steps of adding a Right of Way funding line	4
TPD309	TxDOTCONNECT TPP Tasks	This course covers the processes for adding planning targets, and updating UTP and STIP data.	Upon completion of the course the participant will be able to: 1. Add or update UTP data 2. Add, edit, upload and review STIP data 3. Upload bulk data for Planning Targets	2
TPD310	TxDOTCONNECT Train the Trainer	This Train the Trainer session prepares TxDOTCONNECT Training Champions with the knowledge and skills they need to successfully deliver training for TxDOTCONNECT users in their district or division.	Upon completion of the course the participant will be able to: 1. Deliver the Basic Navigation Instructor Led Training 2. Deliver the Create & Update a Project Instructor Led Training 3. Deliver the Funding Management Instructor Led Training	25
TPD311	TxDOTCONNECT Right of Way Training	This instructor led training class covers navigating and updating right of way information in TxDOTCONNECT. Topics include searching for and updating parcels, organizations, and payments.	Upon completion of this course the participant will be able to: 1. Search for a ROW Project. 2. Search for a parcel. 3. View parcels on the location map. 4. Create a parcel. 5. Update ROW project information. 6. Update Utilities project information. 7. Update parcel information. 8. Manage payments. 9. Search for an Organization. 10. Create an Organization and supporting resources.	10
TPD312	TxDOTCONNECT Right of Way Train-the-Trainer	This train-the-trainer class prepares training assistants to support the training effort. Topics include navigating and updating right of way and parcel information, utilities information, and payments in TxDOTCONNECT.	Upon completion of this course the participant will be able to: 1. Describe the context and driving factors behind TxDOTCONNECT. 2. Access all facilitator and participant end user training materials. 3. Describe the schedule and delivery method of the course Right of Way & Parcel Management in TxDOTCONNECT. 4. Support the delivery of the ROW and Utilities training. 5. Provide support in your location for those who manage right of way, utilities, and parcels.	12

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Course Code	Course Title	Description	Objectives	Duration (in hours)
TPD313	TxDOTCONNECT Preparing the Engineer's Estimate	This instructor led training class covers Engineer's Estimate in TxDOTCONNECT - Release 2. Topics include viewing, creating, reviewing, sealing, and copying an Engineer's Estimate. Additionally, it covers managing Bid Codes and Reference items.	Upon completion of the course the participant will be able to: 1. Describe the requirements to create or copy an engineer's estimate. 2. Add bid items to an engineer's estimate. 3. Manage bid item information in the engineer's estimate. 4. Compare the four views of an engineer's estimate. 5. Invite an engineer consultant to the project. 6. Review and modify Reference items. 7. Review and seal the engineer's estimate. 8. Request a new Bid Code or Reference item 9. Manage a Bid Code Request	7
TPD314	TxDOTCONNECT Preparing the Engineer's Estimate Train-the-Trainer	This instructor led training class covers the context of TxDOTCONNECT - Release 2. Topics include describing and supporting the schedule and delivery method of the course Preparing the Engineer's Estimate to those who prepare these estimates.	Upon completion of the course the participant will be able to: 1. Describe the context and driving factors behind TxDOTCONNECT. 2. Access all facilitator and participant end user training materials. 3. Describe the schedule and delivery method of the course Preparing the Engineer's Estimate in TxDOTCONNECT. 4. Support the delivery of the course TxDOTCONNECT: Preparing the Engineer's Estimate. 5. Provide support in your location for those who prepare engineer's estimates.	16
TPD319	TxDOTCONNECT Right of Way and Utilities Overview (Instructor Led)	This instructor-led training gives a high level overview of the right of way and utilities functionality. This course is intended for TxDOT staff who are not ROW or Utilities users but wish to have a better understanding of the information available.	Upon completion of this course the participant will be able to: 1. Search for a ROW project. 2. Search for a parcel 3. View parcels on the location map 4. Describe ROW project information 5. Describe Utilities project information 6. Describe parcel information and pages 7. Describe Organization functionality 8. Describe Payment functionality	4
TPD327	TxDOTCONNECT Utilities Training	This training class covers navigating and updating utilities information in TxDOTCONNECT. Topics include adding utilities information to a project, entering Standard Utility Agreement information, and processing payments.	Upon completion of this course the participant will be able to: 1. Search for a ROW Project 2. Update Utilities project information 3. Search for an Organization 4. Create an Organization and supporting resources 5. Manage payments	6
TPD328	TxDOTCONNECT Utilities Training (Virtual Instructor-led)	This virtual training class covers utilities information in TxDOTCONNECT. Topics include adding utilities information to a project, and entering Standard Utility Agreement information.	Upon completion of this course the participant will be able to: 1. Update Utilities project information 2. Search for an Organization 3. Create an Organization and supporting resources 4. Manage payments	3
TPD329	TxDOTCONNECT GIS Review (Virtual Instructor-led)	This virtual training class prepares GIS reviewers to receive, assign, review, and approve the parcel survey files (.gdb files) uploaded by a surveyor for right of way projects.	Upon completion of this course the participant will be able to: 1. Manage My group List and My Tasks 2. Review parcel information in the Projects and Right of Way modules 3. Describe the parcel stages as they relate to parcel upload, review, and approval 4. Describe the process for parcel change requests	1
TPD330	TxDOTCONNECT Specifications Request Form (Virtual Instructor-led)	This course covers the basics of submitting and managing specifications request forms in TxDOTCONNECT.	Upon completion of this course the participant will be able to: 1. Create or copy a specification request for one or more items 2. Assign reference items to a specifications request 3. Upload a file with a specifications request 4. Describe the review and approval workflow for specifications request 5. Check the status of a specifications request you submitted 6. Review and approve a specifications request	1

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TRF110	Highway Capacity Analysis	Provides instruction on the latest highway capacity analysis techniques and procedures as detailed in the Highway Capacity Manual and Highway Capacity Software.	Upon completion of the course, participants will be able to: 1. Analyze a basic freeway segment. 2. Analyze weaving areas. 3. Determine levels of service or intersections. 4. Analyze the capacity for a two-lane highway. 5. Describe the primary assumptions for analyzing unsignalized intersections. 6. Analyze the capacity on urban and suburban arterials. 7. Use the Highway Capacity Manual and software to analyze interrupted and uninterrupted traffic flow. 8. Analyze ramps and ramp junctions. 9. Explain the terms "capacity", "levels of service" and "flow rate".	24
TRF201	Intro to Traffic Operations	The emphasis of this training is to address the internal, day-to-day operation of the Department, the Department's traffic functions and how traffic engineering principles are incorporated into the operation.	Upon completion of the course, participants will be able to: 1. Define the term "traffic operations". 2. Describe the general traffic operations project process. 3. Describe how TxDOT collects speed data. 4. Explain the importance of phasing and timing operations. 5. Explain the difference between a signal agreement and a signal warrant. 6. Explain how TxDOT uses traffic crash information. 7. Describe classification and placement of signs and discuss crashworthiness of signs. 8. Explain the uses of TCP, BC, and WZ standard plan sheets. 9. List the types of intelligent transportation systems and devices.	24
TRF203	Risk Management & Tort Liability	Provides an overview of the basic principles of project risk management that are applied to TxDOT projects to avoid traffic incidents and liability. Legal principles, the Texas Tort Claims Act and the lifecycle of a lawsuit are also covered.	Upon completion of the course the participant will be able to: 1. Describe the risk management process. 2. List methods of reducing the risk of highway tort lawsuits. 3. Define negligence and liability. 4. Describe key elements of the Texas Tort Claims Act that apply to TxDOT. 5. Develop post-crash activities and procedures for filing lawsuits. 6. Review examples of tort-related lawsuits.	24
TRF301	Practical Traffic Signal Design	Introduces basic traffic signal design concepts and the preparation of traffic signal plans and specifications. Focuses on the practical applications of traffic signal operation and design with some related theoretical discussion.	Upon completion of the course the participant will be able to: 1. Discuss advantages and disadvantages regarding the operation of signalized intersections. 2. Perform signal warrant analyses. 3. Prepare phasing plans, using NEMA designations. 4. Develop signal timing plans for isolated signalized intersections. 5. Locate detectors on approaches in accordance with safe stopping distances. 6. Lay out a geometric design in accordance with TMUTCD guidelines and other acceptable design practices. 7. Read and explain design details in a typical set of signal plans. 8. Identify and explain the responsibilities of engineers, designers and technicians in regards to signal design and operation tort liability.	24
TRF302	Signal Tech Training - Basic	This course familiarizes participants with the basic components of traffic signals cabinets, basic signal timing terminology,cabinet troubleshooting, and safe practices accompanying signal operations.	Upon completion of the course the participant will be able to: 1. Program a traffic signal controller with basic timing parameters for an 8-phase intersection. 2. Program a Malfunction Management Unit (MMU). 3. Set-up a traffic cabinet for an 8-phase intersection. 4. Troubleshoot malfunctions frequently encountered in traffic signal cabinets.	16

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TRF303	Basic Networking for Traffic Systems	TRF303 introduces the basic networking for traffic systems. Emphasis on network terminology and protocols, local-area & wide-area networks, intelligent transportation systems, cabling, broadband radios, Ethernet, IP address, cellular router, fiber optics	Upon completion of the course the participant will be able to: Gain essential knowledge and skills required to configure, troubleshoot, and maintain network field equipment as follows: 1. Define basic networking terminology; Identify and compare WAN, LAN, MAC; Explain Transport Layer TCP/UDP/IP Protocols; Interpret IP addressing; Identify and practice using CAT5 cables 2. Name basic networking tools 3. Demonstrate creating a mini lab 4. Analyze traffic signal cabinets 5. Discuss examples of ITS field equipment 6. Differentiate NEMA TS 2 Signal Cabinet w/Ethernet 7. Discuss Broadband radios (advantages & disadvantages) 8. Interpret connectivity layout 9. Describe cell router 10. Compare Fiber Optics	8
TRF314	PASSER V Signal Optimization	This course provides practicing traffic engineers and signal technicians with the background information and skills necessary to use the PASSER V signal optimization software.	Upon completion of the course the participant will be able to: 1. Relate traffic engineering theory to the process used to develop optimum signal settings by coding up a signalized road network, inputting volume and timing parameters, and generating optimized timing plans. 2. Verify work by using PASSER V to identify potential sources of localized queuing or signal efficiency to ensure quality signal timings are developed to field implementation.	12
TRF318	Intersection Safety Workshop	Workshop is based on AASHTO Strategic Highway Safety Plan NCHRP Volume 500 Implementation Guide for Intersection Safety. Examples & case studies are provided for the application of proven intersection operation practices and crash reduction measures.	Upon completion of the course the participant will be able to: 1. Apply best practices for traffic ocntrol devices, lighting, and geometric design with an emphasis on rural intersections and 2. Discuss examples and case studies on proven intersection operations practices and crash reduction measures.	8
TRF319	Red-Light Running Handbk Wkshp	Workshop presents an engineering approach to the diagnosis & treatment of potential red-light violation related problems. Focusing on engineering countermeasures prior to consideration of enforcement countermeasures.	Upon completion of the course the participant will be able to: 1. Describe the nature of the red-light running problem; 2. Identify procedures for identifying locations where there is a potential for safety improvement, and 3. Facilitate the evaluation of alternative countermeasures.	7
TRF326	Diamond Interchg Signal Timing	This one-day course reviews the evolution of various stages of diamond interchange signal operations and the advantages and disadvantages of each stage.	Upon completion of the course the participant will be able to: 1. Identify and discuss diamond interchange issues. 2. Explain the various diamond interchange operations and strategies 3. Demonstrate PASSER III-98 features. 4. Analyze and solve an example problem and local case study using PASSER III-98.	8
TRF331	Trf Signal Ops-Hwy Rail Inter	The course provides the practicing transportation engineer with the concepts, methodology, and issues involved in the design of signal timings for interconnection of highway-rail grade crossing warning systems and traffic control signals.	Upon completion of the course the participant will be able to: 1. Discuss the concepts of railroad signal preemption of traffic signals, 2. Discuss design issues related to preemption, 3. Identify safety concerns using various examples, 4. Understand and use the TxDOT preemption worksheet, 5. Analyze case studies where improved preemption may prevent an incident and recommend a solution using concepts and methodology presented, and 6. Understand and use the compilation of information, drawings, standards, and recommended practices presented.	5

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TRF334	Lightening & Surge Protection	This course is designed to give TxDOT engineers and technicians a better understanding of the magnitude of lightning and electrical surges that can cause expensive catastrophic damage to traffic control and ITS equipment.	Upon completion of the course the participant will be able to: 1. Design better protection systems, coordinating ground and surge protection hardware against lightning strikes and surges; and 2. Diagnose installed hardware failures in order to prevent further damage from lighting and surges.	4
TRF450	TxDOT Roadway Illumination & Electrical Installations	Introduces the complete electrical system supplying a roadway illumination project that is to be installed by a contractor. Includes TxDOT specifications, electrical details, construction plans and the National Electrical Code® (NEC) handbook.	Upon completion of the course the participant will be able to: 1. Explain the purpose and organization of applicable articles and how those articles relate to TxDOT projects. 2. Locate applicable articles in the NEC® handbook. 3. Locate information contained in the Standard Specifications for Construction of Highways, Streets & Bridges (600 series), construction project general notes, Departmental Material Specifications (DMS), pre-approved materials, TxDOT Roadway Illumination Details (RID), TxDOT Roadway Illumination Poles (RIP) and electrical details (ED) standard sheets. 4. Explain how the requirements of 600-series of the Standard Specifications, construction project's general notes, RID, RIP and ED standard sheets relate to the NEC® handbook.	24
TRF452	Qualified Person in Electric Arc Flash	The course provides training on NFPA 70E Article 130 to personnel who are required to examine, adjust, service, or maintain electrical equipment.	Upon completion of the course the participant will be able to: 1. Discuss NFPA 70E, Standard for Electrical Safety in the Workplace 2. Identify electrical safety hazards in the workplace 3. Reduce or eliminate exposure to electrical arc flash and electrical shock hazards	8
TRF453	TxDOT Elect Requirements Install Traffic Signals	Course examines TxDOT construction project plans, Tx Standard Specifications, NEC and concerns in the areas of traffic signals and electrical installation for those signals. Course will not cover phasing or timing requirements of traffic signal cabinets.	Upon completion of this course the participant will be able to: 1. Explain the purpose of applicable articles in the National Electrical Code (NEC) and how they relate to TxDOT projects. 2. Locate applicable articles in the NEC for installation of electrical systems for traffic signals. 3. Locate information contained in the 600 series of the standard specifications, construction project general notes, departmental material specifications (DMS), pre-qualified materials, and on the applicable TxDOT standard detail sheets applicable to electrical and traffic signal installations. 4. Explain how the requirements of the 600 series of the standard specifications, construction project general notes and TxDOT standard sheets relate to the NEC	24
TRF502	Design Work Zone Traffic Control Plans	Provides the basic fundamentals and sequential process for planning and designing work zone traffic control plans.	Upon completion of the course the participant will be able to: 1. Explain the purpose of traffic control plans. 2. Explain the importance of work zone traffic control and liability issues. 3. Explain the logical, sequential process for developing and evaluating traffic control plans. 4. Describe the fundamental principles of work zone traffic control. 5. Develop a traffic control plan.	24
TRF503	Older Driver Hwy Design Wkshp	For individuals involved in highway design & operations in accommodating older drivers' needs & capabilities. Covers: human factors to consider with older drivers & recommendations & guidelines (geometric, operations, signing and pavements markings).		6

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TRF510	Install & Maint of Pave Mark	This course has been designed to provide training in the technology, application, and maintenance of pavement markings. Pavement markings guide the movement of traffic and enhance traffic flow driving comfort, and traffic safety.	Upon completion of the course the participant will be able to: 1. Explain retro-reflection and driver visibility needs and general principles of markings. 2. Describe installation and maintenance of various marking types including: traffic paints, thermoplastic materials, preformed tapes, raised pavement markers, and delineation devices. 3. Set up a correct traffic control operation based upon the Traffic Control Plan (TCP) sheets most commonly used for moving operations on conventional highways, divided highways, and freeway lanes.	4
TRF515	Installation and Maintenance of Signs	Provides current practices in the application, installation and operation of signs used on streets and roads.	Upon completion of the course the participant will be able to: 1. Discuss the purpose of roadway signs and delineation. 2. Discuss the importance of the Texas Manual on Uniform Traffic Control Devices (TMUTCD). 3. Identify informational resources for sign installation. 4. Describe preception-reaction time and its relationship to sign placement. 5. Describe the responsibilities of roadway jurisdictions. 6. Use the Sign Crew Field Book. 7. Discuss crashworthiness principles for commonly used sign supports. 8. Explain sign installation methods for commonly used sign supports. 9. Explain sign retroreflectivity concepts. 10. Discuss regulations on retroreflectivity.	12
TRF516	Sign Crew Workshop	The workshop provides demonstrations and instructions on retroreflectivity inspection procedures and sign support issues. It also includes a nighttime visual inspection of sign reflectivity.	Upon completion of the course the participant will be able to: 1. Discuss sign retroreflectivity standards and other important sign support issues and 2. Demonstrate new sign products and sheeting.	12
TRF520	Work Zone Traffic Control	This course reviews basic principles and standards for the design, application, installation, & maintenance of traffic control devices required for construction & maintenance work as set forth in Part VI of the Texas Manual on Uniform Traffic Control.	Upon completion of the course the participant will be able to: 1. Explain TxDOT's legal responsibility and their personal responsibility as it pertains to work zones. 2. Locate and use Part 1, 5, and 6 of the TMUTCD. 3. Explain the difference between a typical application (TA) and traffic control plan (TCP). 4. Identify the components of a work zone and the different traffic control devices used in a work zone. 5. Plan a work zone for various situations.☐ 6. Interpret a TCP, Barricade and Construction (BC), and Work Zone (WZ) sheets. 7. Recognize the differences of performing work at night compared to daytime roadwork. 8. Explain the purpose, and know the location of the Work Zone Safety & Mobility Guidelines and CWZTCDL. 9. Describe the proper location of a flagger for different scenarios.	16
TRF521	Flaggers in Work Zone	This course is designed to ensure employees use proper techniques and equipment while flagging in work zones.	Upon completion of the course the participant will be able to: 1. Describe the duties and responsibilities of a flagger. 2. Identify potential problems related to flagger safety. 3. List proper equipment for flagging. 4. Describe the typical flagging positions. 5. Explain the importance of coordination between flaggers. 6. Demonstrate proper hand signal procedures using the STOP/SLOW paddle and the flag.	4

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TRF522	Flagger - Instr Certification	Designed to teach instructors the essential elements and safety standards of proper flagging procedures. Successful completion authorizes TxDOT trainer to train TxDOT employees in flagging procedures that meet or exceed FHWA/OSHA requirements.	Upon completion this course the participant will be able to: 1. Demonstrate the proper methods, techniques and hand signals of flagging using stop/slow paddles and the flag according to the Occupational Safety Manual and the Texas Manual on Uniform Traffic Control Devices (MUTCD) 2. Demonstrate effective instructional methods and techniques 3. Demonstrate the ability to answer questions correctly related to the subject content 4. Describe the duties and responsibilities of a flagger 5. Relate potential problems associated with flagging safety 6. Describe and list the proper equipment for flagging operations 7. Demonstrate the five typical flagging positions 8. Explain the importance of coordination and communication between flaggers	12
TRF523	Flaggers In Work Zone Local	Course taught by Local Certified Safety Officer. Course is designed to ensure employees use proper techniques and equipment while flagging in work zones.	Upon completion of the course the participant will be able to: 1. Describe the duties and responsibilities of a flagger. 2. Identify potential problems related to flagger safety. 3. List proper equipment for flagging. 4. Describe the typical flagging positions. 5. Explain the importance of coordination between flaggers. 6. Demonstrate proper hand signal procedures using the STOP/SLOW paddle and the flag.	2
TRF525	Work Zone Trf Ctrl Refresh	Course reviews basic and updated work zone traffic control information. It addresses areas of concern while working in and around a work zone. This course is mandatory every four (4) years.	Upon completion of the course the participant will be able to: 1. Apply the TMUTCD principles and TxDOT standards when setting up a work zone. 2. Use the appropriate TCP or TA for a specific TxDOT operation. 3. Plan the location of traffic control devices. 4. Describe safe practices at a construction/maintenance site. 5. Explain the proper set up and take down of a mobile traffic control operation.	8
TRF526	Implementing Safe Work Zone Operations Strategies FHWA	To expand on basic temporary traffic control (TTC) and provide workers in flagged, mobile, short duration, short term and incident response operations strategies to reduce the probability and severity of an incident.	Upon completion of the course the participant will be able to: 1. Understanding and abating common hazards associated with flagged, mobile, short duration, short term and incident response operations. 2. Improve awareness of changing conditions and the necessity for plan modification based on engineering judgment. 3. Work with organizational personnel to customize standard operating procedures (SOP) for common operations and conditions. 4. Assume responsibility for quality operations and control.	7
TRF603	RF Safety Awareness Refresher	Emphasis of the seminar is possible health effects from overexposure to RF, hazard recognition, hazard avoidance, and hazard abatement techniques in connection with working at an RF site.		8
TRF700	Traffic Analysis Tool FHWA	This comprehensive Traffic Analysis workshop will create a shared understanding of the process between all parties in the analysis process.	Upon completion of the course the participant will be able to: 1. Introduce the analysis process 2. Provide an overview of the 4-step planning model 3. Identifying data-driven travel conditions using cluster analysis, 4. Applying an improved calibration process that replaces subjective calibration criteria with criteria that are both statistically valid and derived from observed data 5. Applying improved alternatives analysis utilizing travel conditions analysis to provide more accurate results, resulting in more informed decision-making using microsimulation analysis. 6. Support state DOT in the development and implementation update Interstate Access Process	16

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TRF705	Railroad-Highway Grade Crossing Improvement Program FHWA-NHI-380005	Covers rail-highway crossings, grade crossing components, program/project development & admin, historical background, data collection, safety & operations, alternate improvements, maintenance & others (i.e., private crossings, operation lifesaver).	Upon completion of the course the participant will be able to: 1. Describe Active and Passive Devices used in connection with at-grade crossings. 2. Identify techniques and engineering principles used for at-grade crossings. 3. Appraise existing at-grade crossings. 4. Develop alternate methods to improve railroad-highway grade crossings.	16
TRF824	Left Turn/PED Signal Safety	An overview of safety & operational issues of pedestrians & left-turning vehicles at signalized interactions. Course gives detailed description & demonstration of guidelines & tools developed to address pedestrian safety concerns.	Upon completion of the course the participant will be able to: 1. Apply the guidelines and use the tools from Research Project 0-64es; 2. Determine appropriate left-turn operation modes, with sensitivity to pedestrian safety, vehicular safety, and operational efficiency.	7.5