PROPONENT-SPONSORED ENGINEER CORPS TRAINING (PROSPECT)

Course Catalog

Fiscal Year 2027

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1391 Preparation

Control Number: **253** Length: 36 Hours
CEUs: 3.3 PDHs: 33

Purpose.
Students will learn MILCON programming policies and procedures that include: (a) Headquarters, Department of the Army (HQDA)/Headquarters, US Army Corps of Engineers (HQUSACE) military construction policies; (b) program development cycles; (c) various MILCON appropriations and programs with a focus on Military Construction, Army (MCA); (d) program formulation and approval; (e) various Army level reviews such as Installation Management Command (IMCOM) Headquarters and Regions /Army Commands (ACOM)/ Army Service Component Commands (ASCC)/Direct Report Units (DRU)/HQUSACE/Major Subordinate Commands (MSC)/US Army Information Systems Engineering Command (USAISEC)/HQDA review, project approval process; and (f) how to develop and market a project.

This course includes an overview of the automated applications supporting military construction processes.

Description.
This course provides a logical framework for preparing the DD Form 1391, "Military Construction Project Data". It provides students a working knowledge of how to verify requirements, and prepare the documentation package to request Congressional approval for military construction (MILCON) project(s).

Topics include: (a) identify, define, verify, and justify project requirement; (b) define courses of action; (c) research and apply criteria and standards; and participate in practical exercises (case study). Prepare DD Form 1391 and related documentation to include: (1) detailed justification; (2) supplemental data (e.g., economic analysis, cost estimate, and site considerations); and (3) project summary.

Prerequisites.
This course is recommended for personnel at all levels (installation, IMCOM Directorate, ACOM/ASCC/DRU, USACE district, USACE division, HQUSACE, HQIMCOM, HQDA, Office of the Secretary of Defense (OSD)) who prepare, review, certify, approve, and use DD Forms 1391; (b) Occupational series: 0301, 0800, 0020, and other personnel involved in DD Form 1391 process; (c) Grade: GS-05 and above. Nominees should have 6 months "on-the-job" training prior to attending. Other recommended attendees include personnel from other services, defense agencies and the private sector who are involved in DD Form 1391 preparation, planning and design charrette processes.

1391 Processor

Control Number: **252** Length: 24 Hours
CEUs: 2.1 PDHs: 20

Purpose.
The DD Form 1391 Processor System, which is available in a web-enabled environment, is the means for documenting and submitting military construction project requirements and justification data for funding requests to Congress. Through lectures and practical exercise sessions, this course introduces the student to the capabilities, formats, functions, and usage procedures of the DD Form 1391 Processor System. The DD Form 1391 Processor System allows the user to prepare, edit, query, submit, review, and distribute DD Forms and supporting DD Form 1391 documents electronically using a personal computer.

Description.
Topics covered include creating, submitting, reviewing, and editing individual DD Forms 1391 as well as creating directories and custom reports. The custom reporting and directory features can assist an organization in managing its military construction program. All features of the system are covered.

Prerequisites.
Nominees must be assigned current positions at Army installation, Region, MACOM, USACE district, USACE division, HQUSACE, HQ, IMA, or HQDA who are involved in preparing and/or reviewing the DD Form 1391 and related documentation associated with the military construction planning, programming, and budgeting process. (Note: Although this course is focused on Army policy, employees of other Services are welcome to attend for information purposes.)

Accident Investigation

Control Number: **14** Length: 24 Hours

Purpose.
This three-day course prepares USACE personnel to conduct accident investigations, including Safety Investigation Boards (SIBs), in full compliance with Army and USACE regulatory requirements. Participants will learn to classify accidents, collect evidence, analyze causal factors using structured methodologies such as HFACS, and produce regulation-compliant reports and out-briefs. The course also reinforces standardized accident reporting protocols and provides detailed instruction on the proper completion and use of ENG Form 3394, ensuring accuracy, consistency, and compliance in documenting and investigating mishaps across USACE operations.

Description.
The foundational references for this course include EM 385-1-1 (USACE Safety and Occupational Health Requirements Manual), ER/EP 385-1-99 (USACE Accident Reporting and Investigation), and DA PAM 385-40 (Army Accident Investigation and Reporting). Collectively, these publications establish the regulatory framework and standardized procedures that govern USACE accident investigation and reporting practices. Participants will develop a comprehensive understanding of regulatory requirements and the accident investigation process from initiation through final reporting. Instruction is delivered through a blended format that integrates classroom learning, guided discussions, and team-based practical exercises. This approach strengthens technical proficiency while promoting collaboration, critical thinking, and the effective application of investigative skills in realistic scenarios. This course fulfills the current accident investigation training requirement for personnel seeking credit toward the Professional Certificate in Safety and Occupational Health (PCSOH).

Prerequisites.
Each student is required to bring a laptop equipped with valid CAC credentials for the USACE network to ensure access to all required Blackboard resources.

ACO/PCO Contracting Officers Course (Corps Employees Only)

Control Number: **182** Length: 28 Hours
CEUs: 2.4 PDHs: 24

Purpose.
This is an invitation only course. This is a best practices course for prospective and current USACE Procuring Contracting Officers (PCOs) and Administrative Contracting Officers (ACOs). Invited participants already have a significant foundation of work experience in Contracting. This is an application-based course with several individual and group exercises which emphasize analytical and problem-solving skills relevant to USACE Contracting Officers. This course is not a cram course for a Contracting Officer Review Board (CORB). This course instead helps to refine the existing skill set of prospective and current Contracting Officers through collaborative learning.

Description.
The course learning objectives are as follows: 1. Articulate Contracting Officer authority and limitations; 2. Implement Project Management Business Process (PMBP); 3. Execute effective Acquisition planning; 4. Perform critical solicitation and award phase requirements; 5. Foster post-award collaboration; 6. Demonstrate competent application of Acquisition knowledge. This course includes several individual and group analytical and problem-solving exercises, including a mock Contracting Officer Review Board (CORB) collaborative group exercise.

Prerequisites.
This is an invitation only course. The intended target audience is prospective and current USACE Procuring Contracting Officers (PCOs) and Administrative Contracting Officers (ACOs). Interested employees may submit a registration request to their supervisor. The registration request should include a brief (2 to 3 sentence paragraph) statement about how the employee would benefit from taking this course. If the supervisor concurs, the supervisor submits the registration request to the respective Senior Contracting Official (SCO). The SCO will make final seat selections and will inform employees of their status.

Please do not attempt to register for this course through the local training coordinator. All registration requests must follow the process described above for this invitation only offering.

NOTE: This course is not open to Contractors or any persons from outside of the U.S. Army Corps of Engineers (USACE). Course requirements include a 70% passing score on the final assessment.

Advanced 2D Modeling with HEC-RAS

Control Number: **352** Length: 36 Hours

Purpose.
This is an advanced course in applying computer program HEC-RAS. The course provides participants with the knowledge to effectively use computer program HEC-RAS to analyze difficult hydraulic conditions in natural and constructed channels, utilizing one-dimensional and two-dimensional modeling techniques.

Description.
Topics include: Developing terrain models for 2D modeling; Creating a 2D computational grid; Boundary conditions for 2D Flow Areas; Hooking up 1D elements to 2D Flow Areas; Running a combined 1D/2D model; Viewing 1D/2D results with RAS Mapper; and Debugging 2D model computations.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0800 and 1300; (b) Grade: GS-7 or above. Students must be experienced engineers who have attended Steady Flow with HEC-RAS (Crs. No. 114), and have also either attended Unsteady Flow Modeling with HEC-RAS (Crs. No. 188) or have experience applying HEC-RAS using the Unsteady Flow modeling components. Participants must be in positions where they are currently engaged in using HEC-RAS in hydraulic investigations.

ADVANCED APPLICATIONS OF HEC-HMS

Control Number: **369** Length: 36 Hours

Purpose.
This course provides instruction on the Corps' Hydrologic Modeling System (HEC-HMS) and its application to hydrologic modeling analyses. Workshops provide hands-on reinforcement of scientific and engineering principles presented in lectures. Students will be prepared to work on many types of water resources studies after completing the course. The learned skills can be applied to studies in flood risk management, ecosystem restoration, forecasting, and dam and levee safety.

Description.
The course covers a variety of areas that go beyond the Basic HEC-HMS course which focuses on event-based flood hydrology. This course contains modules on continuous simulation, including the details of modeling water content in the soil, evaporation and transpiration, and details of the components included in HEC-HMS for representing these processes. This course also contains modules on model calibration and validation, snow processes and snowmelt modeling, parameter optimization, uncertainty analysis, modeling frequency and hypothetical storms, and ensemble analysis. A final project is included that ties together the various lecture and workshop topics that were introduced throughout the week.

Prerequisites.
Nominees must have a working knowledge of hydrologic processes and how they are represented in HEC-HMS. Students should have taken Course 178, Hydrologic Modeling with HEC-HMS, or have equivalent work experience. Basic HEC-HMS navigation skills will not be taught in this class. Nominees must be assigned (a) Occupational Series: Selected 0800 and 1300; (b) Grade: GS-09 or above.

Advanced Risk Assessment for Flood Risk Management Studies

Control Number: **210** Length: 32 Hours

Purpose.
TBD

Description.
TBD

Prerequisites.
TBD

Advanced Scheduling for Projects

Control Number: **543** Length: 32 Hours

Purpose.
This course will address specific training needs of the Corps of Engineers to better develop and prepare schedules for major USACE projects.

Description.
The Advanced Scheduling for Projects course will demonstrate advanced scheduling techniques, provide hands on topics and techniques that are relevant to Project Managers, Program Managers, Analysts, Resource Providers, Construction Project Engineers, Construction Admin/Office Engineers and Resident Engineers. The course will expand on project analysis tools and methods taught by prior courses.

Prerequisites.
Project or Program Managers (GS12 to 15), Program/Budget Analysts (GS9 to 13), Schedulers (GS11 to GS14), Resource Providers (GS12 to 14) and Project Engineers/Resident Engineers/Contract Admin. (GS11 to GS14).

Advanced Streambank Protection

Control Number: **394** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course provides guidance on system-wide watershed rehabilitation by introducing advanced concepts in fluvial geomorphology and channel dynamics, along with engineering methods for conducting background assessments and field data investigations, selecting and siting structures, evaluating channel stability, and producing stable channel designs.

Description.
The Mississippi Delta Headwaters Project (MDHP), formerly the Demonstration Erosion Control Project, was initiated to address problems related with watershed erosion, sedimentation, flooding, and environmental degradation. The project activities encompass 16 watersheds, ranging in size from 0.5 to 600 miles2 (mi2) in the Yazoo River Basin of northwest Mississippi. The MDHP revolutionized the systems approach to addressing channel stability issues by considering an entire watershed, rather than only local characteristics and problems. A systems approach is critical when identifying and addressing interconnected problems within a watershed. This approach provides a process-based framework to define watershed dynamics and to develop comprehensive solutions, with widespread applicability in various fluvial environments. The Advanced Streambank Protection course incorporates classroom and streamside lectures within the MDHP area, providing a unique learning environment. The MDHP covers 2630 mi2, making it one of the nation's largest watershed rehabilitation projects. The analysis tools and structural techniques developed here have been used in all parts of the country.

Utilizing a group of nationally recognized instructors, students will participate in a series of half- and full-day field trips to investigate a wide array of stream types within a 50 mile radius of Grenada, Mississippi. Classroom lectures will cover state-of-the-industry protection techniques, watershed dynamics (sediment and hydraulic), and prediction methods in watershed management (i.e., Sediment Impact Analysis Methods (SIAM)). Over 25 streamside interactive mini-lectures will be conducted with subjects including: identifying dominant hydraulic, geotechnical, and morphological processes; bed gradation sampling methods; analysis of riparian vegetation and hydraulic impacts; and the role of vegetation in bank protection. The long-term performance (hydraulic, geotechnical, and environmental) and effectiveness of several grade control and streambank protection projects will be analyzed. Some projects are over 30 years old. Some

failed sites will be reviewed. Repair or redesign and replacement of these projects will be discussed. Using advanced geomorphic analysis techniques, several severe bank erosion and bed degradation sites will be reviewed from both a local and system-wide perspective. For these sites, project goals will be formulated and conceptual designs developed. In-class discussion will focus on further review of completed projects, failures, and erosion problems studied during the field trips. Students are encouraged to give a brief presentation of a current project for group discussion and review.

Prerequisites.
It is recommended (but not required) that the student first complete the Streambank Erosion and Protection course (#285). The target audience for this course is employees in (a) Occupational Series: 0000-0100, 0400, 0800, 1300, and (b) Grade GS-07 or above, but the course is open to employees in any grade or occupational series.

Application of Engineering Geology

Control Number: **251** Length: 36 Hours

Purpose.
This course presents various applications of engineering geology, including rock mechanics, geologic aspects of various foundations, and remediation techniques. The course is recommended for design geologists and engineers, as well as field geologists and engineers.

Description.
Lectures and lab demonstrations will cover: Basic Rock Mechanics (including field investigations, laboratory techniques, and design applications); Geological Considerations of Soils (including formation and laboratory techniques); Rock Excavation (including blasting and mechanical methods); Foundation Treatment (including gravity structure stability and uplift as well as grouting and cutoff wall remediation); Rock Reinforcement (including slope stability, rock bolts, and rock anchors); Geological Considerations of Dam and Levee Safety (including risk informed analysis, instrumentation, and remediation). This class includes a one day laboratory visit where Rock Mechanics, Soil Mechanics, and Drilling Techniques will be demonstrated.

Prerequisites.
None

Architect-Engineer Contracting

Control Number: **4** Length: 36 Hours
CEUs: 3.1 PDHs: 31 LUs: 31 PDUs: 31

Purpose.
The course objective is to provide a concentrated look and experience with all aspects of A-E contracting, including acquisition planning, public announcement, selection, pre-proposal activities, negotiations, contract award, administration and closeout.

Description.
Upon completion of this course, the student will be able to identify the principal requirement of the Brooks Act and Define A-E Services. Identify major considerations and methods for acquisition of A-E services and the primary types of A-E contracts used as well as when they are appropriate; Identify requirements to publicly announce an A-E Contract. Analyze the criteria to determine the appropriate firm's requirements to be written into the announcement. Identify the purpose and general content of the SF 330. Identify steps, considerations, and governance of an A-E Selection Board. Identify the principle activities of the pre-proposal phase of an A-E contract (Project Specific Firm Fixed Price, Indefinite Delivery Contract, and Task Order). Identify information required to prepare an Independent Government Estimate; Identify the main items of an A-E firm's price proposal and the Negotiation Preparation Process; Identify the process of negotiating contracts; Identify elements and process of an A-E contract award. Identify primary A-E contract clauses and Administration Requirements. Identify the role, responsibilities, and tasks for technical management of an A-E contract.

Prerequisites.
Nominees must be assigned to occupational series: selected 0340, 0800, 0900, and 1100: GS-11 and above. Lower grade employees are eligible only if their current duties are directly related to A-E contracting. Employees with current or pending assignments which entail selection, negotiation of and/or administration of A-E contracts are eligible. Nominees must not have attended similar courses within the past 3 years. Attendees, a laptop computer with EXCEL software.

Basics of Coastal Processes

Control Number: **11** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course provides a formal introduction to the technical and management issues important to coastal studies and projects. The course addresses the foundation areas for effectively understanding and working on projects in the coastal zone and is divided into five areas addressing physical setting/location (geology and geomorphology), forcing factors (weather, tides, waves, storm surge), coastal processes (hydrodynamics and sediment transport), coastal problems and solutions, and special planning considerations (sea-level change, regional sediment management, dredging, etc.) The problems, the approach to addressing the problems, and the solutions presented in the class are particularly applicable to the Corps of Engineers' planning and environmental management missions but would be useful to project managers, planners, engineers, scientists, regulatory specialists, attorneys, and members of public stakeholder groups involved with studies and projects in the coastal zone.

Description.
Major topics to be covered include: coastal geology and geomorphology, hydrodynamics, littoral sediment transport processes, sediment budgets, coastal problem identification and analysis of alternative solutions, impact prediction and monitoring, coastal data collection, and the basic issues of coastal project planning and design. Unique coastal settings (including lake shores), regional management, stewardship and mitigative practices will be emphasized. The mission and authorities of the Corps of Engineers, particularly as they relate to other Federal agencies and state coastal zone management, will be explored.

Attendees will be introduced to the "Coastal Engineering Manual" (CEM) as a basic reference, as well as journal publications and other publications useful for a better understanding of coastal zone issues. Common computer tools used in coastal engineering will be described but will not be taught as part of this course. Issues and principles will be illustrated through the instructors' examples, case studies, and a field trip to select sites on the North Carolina Outer Banks. The training site is the USACE Coastal Field Research Facility (FRF), and elements of the course are designed to take advantage of this venue.

Prerequisites.
Nominees should be assigned as engineers, geologists, physical scientists, environmentalists, biologists, planners, project managers, regulatory specialists, or attorneys who have review, planning, or design responsibilities for coastal shore protection, navigation, and environmental projects. Grade: GS-07 or above.

BIM For Managers

Control Number: **51** Length: 20 Hours
CEUs: 1.6 PDHs: 16

Purpose.
This course is primarily intended to introduce project, construction, and facility managers to Building Information Modeling (BIM). BIM is a project life-cycle system that results in a virtual information model passed from the design team, to the contractor, to the owner or facility manager. While this is not a “How to use BIM software course”, participants will learn what to expect when BIM processes are used on their projects. Knowledge gained in this course will allow students to understand the steps taken to complete a BIM project and how their collaboration with the team members early on in the conceptual/design stages of the model can add significant value to the project.

Description.
This course provides an overview of the impact of BIM on managers and addresses their roles and responsibilities in dealing with BIM requirements and deliverables. BIM’s strength lies in its ability to identify project conflicts upfront, which in turn eliminates cost prohibitive changes required later on in the construction process. Class will facilitate discussions to identify relevant, standard BIM data requirements and the respective workflows during each phase of the project life cycle. BIM is an evolving process that results in a much better project because you have team members collaborating from the project outset and have the ability to understand how changes at each project phase might impact the end result.

Prerequisites.
Project Managers, Construction Managers, and Facility Managers (GS-09 – GS-14), Series 0800 and 1640.

BOAT OPERATOR LICENSE EXAMINER

Control Number: **172** Length: 40 Hours
CEUs: 3.7 PDHs: 37

Purpose.
This course trains, tests, and certifies individuals as motorboat license examiners for the Corps of Engineers.

Description.
This course is designed to certify individuals that have been nominated by their District Motorboat Coordinator to enable identified USACE licensed motorboat operators to become boat license examiners that will teach, qualify, and license operators of Class A and Class I USACE motorboats.

The course utilizes lectures, demonstrations, group assignments, and practical exercises to enable students to perform duties as outlined in Engineer Regulation 385-1-91 and be in compliance with EM 385-1-1 Safety and Health Requirements Manual.

Course attendees will demonstrate motorboat operation proficiency, complete a 100-yard open water swim test (with PFD) including self-rescue into a vessel, and demonstrate effective presentation and instructional skills. Students must successfully pass all Go/No Go assessments AND achieve a minimum of 90% proficiency on a written exam. Participants need to acknowledge that this course proceeds regardless of weather conditions including rain, cold, heat and/or wind.

Prerequisites.
-Submitted MOLE nomination form signed by District Motorboat Coordinator and direct supervisor.
-Current OF 346 (U.S Motor Vehicle Operator's Identification Card)
-Proof of completion of a U.S. Coast Guard approved or National Association of State Boating Law Administrators (NASBLA) training course for the state in which they are operating
-Experienced, licensed USACE Class A and Class I boat operator
-Current First Aid and CPR certification
-Ability to swim in open water in a Personal Flotation Device (PFD) for 100 yards and self-rescue into a vessel

Budget Training

Control Number: **254** Length: 32 Hours
CEUs: 2.8 PDHs: 28 PDUs: 29

Purpose.
This course is targeted for those civilian and military employees of the Corps of Engineers who work directly within the financial management arena. It provides a framework and knowledge of the federal budget process with specialized emphasis on policies and procedures of the Corps of Engineers. The objective is to provide a uniform understanding of Corps budgeting so that operations are improved/streamlined at all Corps organizational levels.

Description.
The course describes program and budget activities at the HQUSACE, MSC, District, FOA, and Laboratory levels, and how these activities interrelate with those at Army, DOD, OMB, and the Congress. The curriculum is structured around the formulation and execution of an activity's operating budget. The material is presented through lectures and practical exercises covering various budgeting processes and budget-related issues. Major topics/areas include command operating budgets; Corps of Engineers funding sources to include military, civil and reimbursable programs; military and civil works budgeting; budget execution; statutory and administrative limitations; mobilization; and Corps of Engineers revolving fund.

Prerequisites.
Nominees must be assigned to the CP-11 career field in a grade of GS-09 or above in one of the following Occupational Series: 0501 Financial Analyst, 0505 Financial Manager, 0511 Auditor, 0525 Accounting Tech, 0510 Accountant, 0560 Budget Analyst, 0561 Budget Tech, 343 Management/Program Analyst. Students must be a Corps of Engineers Employee, Intern assigned to USACE Resource Management, or foreign nationals working in a USACE Resource Management Office. Waivers for any series not listed above will only be considered for GS-12 (or equivalent) and above and must be approved by the course Program Manager

Building Air Barriers and Pressure Testing

Control Number: **126** Length: 32 Hours
CEUs: 2.7 PDHs: 27 LUs: 27

Purpose.
Make your building tighter and healthier for its inhabitants and more energy efficient for the owner. Learn how correctly define and design a tight building envelope to have decreased air infiltration. Learn how to be an effective and involved witness for building envelope pressure tests. Know how to determine if your building's air leakage rate meets its goal.
Unified Facilities Criteria (UFC) 3-101-01 Architecture, and related guide specifications, define the Army, Navy, and Air Force requirements to install continuous air barriers and to perform pressure testing to determine overall air leakage in all new and major retrofit construction projects. This class provides architects, engineers, and construction QA personnel with the knowledge and skills necessary to design, construct, and test effective continuous air barriers on military facilities. Witness actual building pressure tests on a completed facility to understand how design and construction affects overall building air leakage rates and attain good test results.

Description.
Through lecture, field pressure and diagnostic testing, this course presents the following building air barrier and testing related topics: design and construction of building air barriers including related materials, components, and systems; effect of air barriers on indoor air quality; USACE Air Leakage Test Protocol including pressure and diagnostic testing equipment and thermography. Hear from Industry experts who will present information on equipment and material systems available to make your project a success.

Prerequisites.
Nominees should be assigned (a) Occupational Series: 0800; (b) Grade: GS-05 through GS-14, or equivalent; (c) current or projected position as an architect, engineer, engineering technician, construction representative, resident engineer, or project manager.

CE CONTRACT LAW

Control Number: **342** Length: 36 Hours
CEUs: 2.6 PDHs: 26

Purpose.
This course is primarily intended to instruct USACE attorneys in the basic legal principles and procedures related to Corps of Engineers construction contracting. Attendees will be able to provide competent legal advice on contractual matters such as formation and administration issues and to process contract actions such as bid protests, mistakes-in-bid, and claims and appeals.

Description.
Through the use of lectures, workshops, and case study sessions, this course primarily addresses those aspects of construction contract law essential to successfully accomplishing the Corps' contract mission. This course is designed for training Corps of Engineers Attorneys, Acquisition personnel, and Project Managers.

Prerequisites.
Nominees must be assigned (a) Occupational series: 905, 1102, or 340; (b) Grade: GS-09 or above; (c) Other: This course is recommended for attendees that have had basic government procurement law training.

CERCLA/RCRA PROCESS

Control Number: **356** Length: 24 Hours
CEUs: 2.1 PDHs: 20

Purpose.
This course trains personnel on the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA) hazardous substance response process and the Resource Conservation and Recovery Act (RCRA) corrective action process as it relates to the Department of Defense. It addresses the Defense Environmental Restoration Program which includes the Installation Restoration Program (IRP), the Base Realignment and Closure (BRAC) Program, and the Formerly Used Defense Sites (FUDS) Program. It also has applicability to cleanups conducted under the Formerly Used Sites Remedial Action Program (FUSRAP), the EPA Superfund program, and cleanups at Army Corps of Engineers Civil Works facilities. This is an ISEERB approved course.

Description.
This course has been developed by in-house USACE staff and focuses on the regulatory requirements for cleaning up hazardous substances, pollutants, and contaminants under CERCLA and solid and/or hazardous wastes at RCRA sites. This course covers the CERCLA process as outlined by Subpart E of the National Contingency Plan and the RCRA corrective action process as implemented via EPA guidance, RCRA permit requirements, and consent orders. CERCLA topics addressed include preliminary assessments, site inspections, removal site evaluations, engineering evaluations/cost analyses, removal actions, remedial investigations, feasibility studies, proposed plans, records of decision (ROD), pre and post-ROD changes, remedial design and construction, and public participation requirements. RCRA topics include the initiation of the RCRA corrective action process via permit conditions and consent orders, the RCRA Facility Assessment, RCRA Facility Investigations, Interim Stabilization Measures, Corrective Measures Studies, and Corrective Measures Implementation. In addition to the RCRA course, individual two-day workshops on the CERCLA or RCRA process can be tailored to meet your site specific training needs. Whether you are interested in an onsite CERCLA/RCRA process course or a separate course featuring either the CERCLA or the RCRA process, contact the USACE Learning Center, Huntsville, AL.

Prerequisites.
Nominees must have at least one year of environmental experience. Priority will be given to personnel directly involved in environmental restoration. The target audience for this course includes the following occupational series: 800 series Engineers (0801, 0819, 0830, 0893, 0896, etc); Environmental Protection Specialist (0028); Program Managers, Engineering and Science (0340); Industrial Hygienists (0690); Geologists/Hydrologist (1350, 1315); and Chemists (1320).

Civil Design for Planning

Control Number: **218** Length: 36 Hours

CEUs: 3.0 PDHs: 30

Purpose.

This course focuses on the proprietary Corps of Engineers (USACE) Civil Works project development process. It provides a general understanding of the broad-range of engineering studies and sensitive engineering issues that impact and influence project formulation, the feasibility planning phase (including the SMART Planning processes), as well as the pre-construction engineering and design (PED) phase. The course also covers the processes involved in accomplishing studies (e.g. Civil Works Review Process, quality control, value engineering), and tools (mapping, risk based analysis, Project Management Plans, etc.). It discusses the role of the designer, planner, and project manager in the context of the Project Delivery Team. It is intended to reach newly assigned professional scientists/engineers within the engineering, planning, and project management functions of the Corps, or those who are new to the Civil Works process. The class can also provide an excellent refresher and update for staff currently working in the program. Individuals not working with, or planning to work with, the USACE Civil Works process may receive less benefit from this class.

Description.

The objective of this course is to develop knowledge, skills, and aptitudes regarding the policies, procedures, tools, and techniques for the execution (planning and design) of a USACE Civil Works project. After completing this course, the student should be able to more effectively execute and coordinate a multi-disciplinary USACE Civil Works project. Topics include organization and development of resources required to execute the process, policy guidance, and various sensitive design concerns within the project planning process (including engineering overview, geotechnical, electrical/mechanical, hydrology and hydraulics, risk-based analysis, value engineering, structural engineering studies, and geographic information systems). Emphasis is placed on navigating the review process and the SMART Planning Process. This course tracks the Corps of Engineers Project Management Business Process from the authorization of the first study to the completion of construction. The course was developed for USACE Civil Works personnel and may be of reduced value to personnel from other agencies. Students completing the class may receive 3.0 CEU (Continuing Education Units), or 30 LU (Learning Units), or 30 PDH (Professional Development Hours).

Prerequisites.

Nominees should be on, or have a potential assignment to a Civil Works study team in the Planning or Engineering phases and have functional responsibilities within the Planning, Engineering, Construction, Operations, Real Estate, Counsel, or Project Management organizations. (a) Occupational Series: All series; and (b) Grade: GS-07 through GS-13. Individuals not working with, or planning to work with, the USACE Civil Works process may receive less benefit from this class.

CIVIL WORKS COST ENGINEERING

Control Number: **24** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course is needed due to the demand for training Cost Engineers so they are knowledgeable in the Civil Works (CW) field. Currently there are a large number of cost engineers in the CoE that do not have the intermediate and advanced civil works cost engineering skills and knowledge to adequately perform their job duties. Estimating civil works projects is a specialized field, whereby correct and accurate estimating is needed in order to support and to successfully complete projects. Also an audit of the CoE concluded that the Corps needs to provide more training in the Civil Works field.

Description.
The topics covered include the regulations pertaining to Civil Works Cost Engineering, Cost Engineering throughout the Civil Works SMART Planning Process, Cost Quality Management, and the role of the Cost Engineer on the project delivery team throughout the project delivery process. The requirements for performing Cost and Schedule Risk analysis and development of contingencies for CW projects will be explained. Advanced methodology for quantity takeoff and review of plans and specifications will be taught. The course will include discussions and examples of real life civil works cost estimating and conditions effecting production rates, bidding strategies, acquiring transportation and placement of materials. Requirements for Agency Technical Review will be discussed. Students are expected to bring and be able to use MII Cost Engineering software to complete the course problem.

Prerequisites.
The employees that should attend this class include Cost Engineers at the District and Division level currently working on Civil Works Projects. Occupational Series: 0800; 0802; 0807; 0808; 0810; 0830; 0850; 1301; 1350; grades: GS-07 and above. The people attending this class should be currently assigned to a Cost Engineering organization or working in the Civil Works field. This course is designed for the intermediate to advanced cost engineer that works on Civil Works projects during their work duty/responsibility. Potential candidates with less than five years' experience in preparing cost estimates or grade GS-5 are eligible if recommended by their supervisor.
It is strongly suggested that potential students have taken the Cost Estimating Basics and MII Basic PROSPECT classes.

Civil Works Programming Process

Control Number: **358** Length: 36 Hours
CEUs: 3.1 PDHs: 31 PDUs: 27

Purpose.
This course is designed primarily for programmers, project managers, study managers, program analysts and project deliver team. It provides a comprehensive understanding of civil works activities, programming and project/study management concepts and their interrelationship with mission accomplishment.

Description.
The course includes practical exercises and discussions of: (1) the Corps of Engineers, the Administration, Congress, and actions relative to civil works studies and projects, authorizations, and appropriations; (2) program development and formulation at the district and the division level, including new starts, continuing programs and capabilities; (3) detailed preparation of study/project cost estimates, schedules, justification documents, and related project management documents; (4) program defense including ASA/Congressional hearings, district briefings, division testimony, and OMB, ASA(CW) and congressional hearings; (5) study/project and program execution, including work allowances, reprogramming actions, and related documents. This is not an Introductory Course, but covers advanced content for professionals with the minimum experience in the Civil Works Programs identified below.

Prerequisites.
Nominees must be assigned to the following (a) Occupational Series: Any job series within career program 18 (engineers and scientists) and some jobs within the career program 51 (general administration and management); (b) Grade: GS-09 and above with at least two years of Civil Works Programs Management Experience.
RECOMMENDATION: Student should have a minimum of two-year USACE Civil Works experience. Student should have taken course # 86, USACE Civil Works Project Development Process (Planning Core Curriculum Course 1) and/or some other USACE Civil Works overview course prior to # 358. One should also complete # 358 prior to taking course # 10, Civil Works Program Development with HQ.
Recommended Job Series:
Career Program 18:
Includes Perform duties and responsibilities in eight functional categories: Civil Works Planning, Construction, Engineering, Project Management, Public Works, Real Estate, Operations and, Research and Development. Primarily involved with planning, design, construction, operation and maintenance of civil works projects; hazardous toxic waste remediation and installation restoration programs; and management of

land, water, and related natural resources for public purposes and research in such fields.
Career Program 51:
Includes General Administration and Management. Manage, direct or assist in a line capacity in managing or directing, one or more programs. They are responsible for providing or obtaining a variety of management services essential to the direction and operation of an organization. An extensive knowledge and understanding of management principles, practices, methods and techniques, and skill in integrating management services with the general management of an organization.
Career Program 11:
Includes professional and administrative positions in a variety of financial and resource management related functional specialties. However, this course is not geared towards financial and resource management careers.

Coastal Ecology

Control Number: **263** Length: 36 Hours
CEUs: 2.9 PDHs: 29

Purpose.
This course provides Corps of Engineers personnel with state-of-the-art knowledge and technology in marine and coastal ecology. Students are given an overview of the latest scientific and analytical techniques in the field of coast ecology and related sciences.

Description.
Through a series of lectures, practical field exercises, and field trips, students are introduced to the basic concepts of marine/estuarine ecology (including benthic ecosystems, fisheries, coastal marsh and seagrass ecology), sensitive resources, experimental design, and current marine ecological techniques. The role and importance of coastal ecosystems will be discussed. Temperate, subtropical, and tropical ecosystems will be covered for the Gulf, Atlantic, and Pacific coasts. Students should bring appropriate clothing/gear (e.g. boots, sunscreen, etc.) to participate in the field component of the course.

Prerequisites.
Nominees must be assigned: (a) Occupational series: 0020, 0400s, 0800s, and 1300s; (b) Grade: GS-09 and above; and (c) This course is meant primarily for engineers, scientists, and technicians with planning, operations, or regulatory duty assignments involving marine and coastal systems.

Coastal Engineering Projects and Design

Control Number: **13** Length: 40 Hours
CEUs: 2.7 PDHs: 27

Purpose.
This course provides formal and hands-on training in the fundamental processes, and functional and structural design elements required to work on coastal engineering projects. The emphasis is on learning and applying the basics of shore protection and navigation structure planning, design, rehabilitation, and maintenance. Attendees are introduced to coastal project and element alternatives, functions, and design procedures for structural and non-structural solutions. This course is intended primarily for planning, engineering, and construction or operations personnel needing state-of-the-art procedures and techniques for working on coastal projects. Course content will emphasize up-to-date technology and analysis tools specific to the needs of both newly assigned and experienced practicing coastal engineers.

Description.
Basic scientific principles and computational procedures presented in the Coastal Engineering Manual (CEM) will serve as the formal instruction foundation. Attendees will become familiar with the use of the CEM and other numerical computational tools and models, physical models, and field data collection through lectures, case studies, and classroom exercises. Access to and use of USACE and other coastal processes and map databases will be discussed. These materials will be illustrated by instructors' examples. Attendees will become familiar with (1) coastal project development and structure design including navigation breakwaters and jetties, shore-connected and detached breakwaters, groins, seawalls and revetments, and (2) the planning and design of beachfills, offshore berms, physical aspects of coastal wetland restoration dredging and material disposal management, and channel design. Attendees will learn the functional and structural design characteristics of different types of coastal structures and how to evaluate non-structural alternatives. Topics discussed are (1) coastal hydrodynamics (waves, currents, and water levels); (2) coastal geology and sediment transport; (3) wave-structure interaction (i.e., wave runup, overtopping, reflection and transmission); (4) design and use of coastal armoring; (5) design of beach fills; (6) design of navigation structures; and (7) computational tools.

Prerequisites.
This class is intended for engineers or scientists who have been assigned to coastal projects and who need in-depth knowledge of coastal planning, project design, and operational practices. Attendees should have some experience or background in coastal processes having

taken either the PROSPECT Coastal Planning course (#11) or an equivalent university level coastal course. Grade: GS-09 or above.

Concrete Fundamentals

Control Number: **21** Length: 36 Hours

CEUs: 2.4 PDHs: 24

Purpose.
This course provides the participant with the specific fundamental knowledge of materials, techniques, and procedures for quality concrete construction.

Description.
Through lectures and demonstrations, this course covers concrete fundamentals such as materials, sampling, testing, handling, mixing, placing, consolidating, finishing, curing, and other miscellaneous items.

Prerequisites.
The target audience for this course is the occupational series 081, 0802, 0806, and 0810. The following job descriptions include Concrete Materials Engineer, Construction Quality Assurance Representative, Geotechnical Engineer / Geologist, Civil Engineer, and Structural Engineer.

Concrete Maintenance and Repair

Control Number: **257** Length: 36 Hours

PDHs: 33

Purpose.
This course provides the participant with specific knowledge of materials, techniques, and procedures for evaluation, repair, and maintenance of concrete.

Description.
Through lecture and demonstration sessions, the student will be able to identify the causes of distress, determine extent of failure, list advantages and disadvantages of making repairs, and recommend methods of repair with concrete, mortars, resins, surface coatings, and joint sealants. This course does not cover repair or maintenance of concrete pavements.

Prerequisites.
Student should have completed PROSPECT #021 Concrete Fundamentals.

CONSTRUCTION CONTRACT ADMINISTRATION

Control Number: **366** Length: 36 Hours

CEUs: 3.1 PDHs: 31 LUs: 31 PDUs: 31

Purpose.
The course objective is to provide students with the fundamentals of the Department of Defense (DoD) acquisition process as it relates to administration of fixed-price construction contracts. The primary focus of the course is post-award contract administration, but the course includes pre-award coordination and review for field-level personnel. As an introductory course, it also serves as a developmental link between the members of the Project Delivery Team through the project life cycle.

Description.
Upon completion of this course, the student will be able to identify the authorities and responsibilities of the contracting organization; recognize the statutory and regulatory requirements to ensure competition, proper contract type, and acquisition planning; identify the requirements for pre-award planning to construction contracts; identify the roles, responsibilities, and authorities of the project management team; interpret the requirements of Labor Standards law to construction contracts; interpret the rules of contract contained in the specification clause; identify the purpose of the contractor's accident prevention plan; explain construction management policies as it pertains to quality control and quality assurance; identify the basic concepts of price, cost, technical, profit, and analysis; identify the process for preparing for and holding negotiations; identify the requirements to process construction progress payment; define the policy and requirements for contract completion and closeout; and identify conditions for contract termination and the conditions of the dispute clause.

Prerequisites.
Nominees must be assigned to occupational series: selected 0340, 0800, 0905, 1100, 1102: GS-05 and above. Experience: 0-3 years in the construction function and actively engaged in the field administration of fixed-price construction contracts. Nominees should possess a knowledge of the post- award construction contract process. This course is also for those in other series actively and directly involved in the construction contract process.

CONSTRUCTION QUALITY MANAGEMENT - GOVERNMENT EMPLOYEES

Control Number: **29** Length: 8 Hours

CEUs: 0.4 PDHs: 4

Purpose.

This course is an introduction to the Construction Quality Management System as practiced in the Corps of Engineers.

Description.

After completing this course, the student will understand the objective of construction quality management related to establishing quality requirements, controlling quality during construction, and taking necessary measures to ensure quality. This training program satisfies requirements for Construction Quality Management for Government Employees and will not require recertification annually.

Prerequisites.

Nominees must be assigned (a) Occupational series: 0800; (b) Grade: GS-05 or above; (c) Other: Students should have a current or projected assignment as a member of the resident or area engineer's staff whose day-to-day function entails construction contract surveillance and contract administration. Specification writers and designers who establish the quality to be incorporated in the contract documents are eligible for attendance.

CONSTRUCTION SCHEDULE PERFORMANCE MANAGEMENT

Control Number: **80** Length: 32 Hours

CEUs: 2.1 PDHs: 21 PDUs: 17

Purpose.

The course objective of this course is to enforce contract clauses and technical provisions with respect to project schedules. USACE manages thousands of construction projects which requires contractors to manage schedule performance using sophisticated network scheduling techniques. In this context, it is paramount USACE construction agents perform effective professional schedule performance management consistent with contract requirements and industry best practices using Oracle's Primavera P6 Enterprise Project Portfolio Management software. This course is recommended for the construction management team in schedule performance management.

Description.

Upon completion of the course, the student will be able to identify the FAR Clauses that affect schedule management; identify the requirements of UFGS (Unified Facilities Guide Specifications) for Project Schedules; identify critical terms and principles for project scheduling; express the basic processes to develop a Network schedule; develop network from the list of activities showing logic, early and late dates, float, and longest path for Class; identify the important aspects of the Preliminary Project Schedules (PPS); using the Primavera P6 software and class workshop, analyze the Initial Project Schedule; utilizing the Primavera Schedules P6 and classroom exercises, identify changes, discrepancies, common issues between schedule updates; utilizing Primavera P6 and classroom exercises, analyze schedule updates using baselines and Claim Digger; utilizing examples of classroom exercises and Primavera P6 software, analyze time impact using fragnets and CPM schedules; identify case law relating to construction scheduling and delay claims; and identify common scheduling claim issues.

Prerequisites.

Nominees must be assigned to occupational Series 0800. This is a software/computer intensive course – students MUST be proficient in the use of computers. This course is designed for USACE Project and Resident engineers and District, Division, Branch, and Section heads of construction. Students need to have prior knowledge of network scheduling and Primavera P6 software. Students are required to have their own laptop with the Primavera P6 software loaded and operating.

Continuing Authorities Program (CAP)

Control Number: **49** Length: 28 Hours
CEUs: 2.5 PDHs: 25 PDUs: 23

Purpose.
This course, Continuing Authorities Program, CAP, develops the skill sets of Program Managers, Project Delivery Teams, and Section level chiefs in essential knowledge of CAP Authorities, processes and guidance in managing CAP projects, timely decision-making, and scaling business processes to match complexity of the project.

Description.
The purpose of the CAP is to plan and implement projects of limited size, cost, scope, and complexity in an accelerated manner as compared to traditional specifically authorized projects. CAP Program Overview: General Principles and Intent, Guidance for Specific Project Authorities, Restrictions on Program Eligibility, Statutory Federal Participation Limits, and After Action Reviews. CAP Program Management and Project Management: Coordination Account, Program Cost Sharing, Project Management Plan. CAP Feasibility Phase: Processes, Milestones, and Approvals for Decision Documents, Scaled Plan Formulation, Economic Evaluation, and Environmental Evaluation, Ecosystem Restoration and Estuary Policies Applicable to Sections 204, 206, and 1135, Beneficial Uses of Dredged Material Multi-Purpose CAP Projects, Recreation, Monitoring and Adaptive Management, Converting GI Funded Studies to CAP, and Converting CAP Feasibility Studies to GI. CAP Design and Implementation: Design and Implementation Phase, Project Implementation, Real Estate, Design Deficiency Corrections, Post Implementation Federal and Non-Federal Responsibilities. Legal Agreements: Sponsor Agreements & In-Kind Contributions, Accelerated & Contributed Funds Agreements, Non-Federal Feasibility Work & Non-Federal Design and Implementation Work.

Prerequisites.
Students should be CAP Program Managers, PMs, PDT members (Civil, Geotechnical, H&H, Environmental, Cultural, Cost Specs, Real Estate), Planners, first line supervisors and senior staff responsible for the preparation, review and approval of CAP project/program submittals. Attendees should have basic knowledge of the Corps' Project Management Business Processes and have completed Planning Core Curriculum 1 online course or possess equivalent knowledge of general Civil Works processes.

Corrosion Control

Control Number: **9** Length: 32 Hours
CEUs: 2.9 PDHs: 30

Purpose.
This course familiarizes design engineers, maintenance staff and engineers involved with project operations such as structural, mechanical, electrical, etc., with the mechanism of corrosion, the results if unchecked, and the methods of its mitigation. Designers, if familiar with corrosion phenomena, can temper their designs so as to avoid potential problems or make it easier to provide protection.

Description.
Overview and presentation of coating systems utilized in USACE, overview of composites, and tour of coatings and composites laboratories. Topics included in this course are: fundamentals of corrosion and engineering alloys; principles of cathodic protection and electrode potentials; design of cathodic protection systems; design considerations; atmospheric corrosion; design for underground cathodic protection systems; types of corrosion; painting practices; fresh water and sea water corrosion; system test and evaluation; and materials selection.

Prerequisites.
Nominees must be assigned (a) Occupational series: selected 0800; Wage Grade (b) Grade: GS-07 or above; (c) Other: students should be designers and maintenance personnel.

Cost Estimating Fundamentals

Control Number: **181** Length: 36 Hours
CEUs: 2.9 PDHs: 29

Purpose.
This course provides training on basic cost estimating principles and fundamentals. The training is intended for individuals who are entering the Cost Engineering profession with little or no cost estimating experience or who will be responsible for the review or preparation of detailed construction cost estimates.

Description.
This is a basic, non-computer based course designed to teach individuals the basic principles of construction cost estimate preparation, and how to identify and classify costs associated with construction. Through the use of lectures, visual aids, individual and group practical exercises, the course provides instructions on: (a) an overview of procurement and cost engineering regulations; (b) work breakdown structures; (c) reading construction drawings; (d) quantity calculation and development; (e) performing manual quantity takeoffs; (f) determining labor costs and crew composition; (g) estimating costs of equipment, material, and supplies; (h) developing indirect costs; (i) determining cost escalation and contingencies; and (j) preparing government estimates summaries.

Prerequisites.
Nominees must be assigned (a) Occupational series: 0800; 0802; 0807; 0808; 0810; 0830; 0850; 1301; 1350; (b) Grade: GS-05 or above; (c) Other: Nominees must obtain Huntsville approval before attending this course. A pocket or computer calculator is required for this class. Also, a tablet or notebook computer is permitted for this class for basic computations (e.g., excel).

Cost Reimbursement

Control Number: **1** Length: 36 Hours
CEUs: 2.5 PDHs: 25

Purpose.
This course provides practical guidance on how to structure, solicit, and manage cost-reimbursement contracts. The course is suitable for all functional elements, but is primarily geared to the Corps construction execution workforce. The course directly supports the Corps vision by addressing many contemporary issues regarding the management of innovative contracts and supports the "Best Value" selection process. As noted above, the FY 14 student population was primarily from and interested in service and O&M Contracts... not construction.

Description.
This course covers the acquisition strategy, source selection, and management of cost-reimbursement contracts. The instruction and text material addresses solicitation preparation to final closeout of cost-reimbursement contracts. Specific subjects addressed include the history of cost-reimbursement contracts, acquisition policies, selection of contract type, preparation of the request for proposal, source selection procedures, cost accounting, procurement and property management, Work Authorization Document (WAD) and Earned Value Systems for cost control, fee and profit policies, Corps organization and management, contractors organization, and final closeout.

Prerequisites.
Nominees should be assigned (a) Occupational Series: 0028, 0340, 0560, 0800, 0905, and 1100; (b) Grade: GS-11 or above, or equivalent; Military--Captain or above; (c) Responsibilities: personnel should be assigned or actively engaged in the administration of a current or future cost-reimbursement contract or to a start-up team for a cost-reimbursement contract; (d) Knowledge/skills: nominee should possess a general knowledge of contracting procedures and construction contract administration; (e) Prerequisite training: nominee should have completed the Construction Contract Administration course (No. 366).

Cost Risk Analysis BASIC

Control Number: **220** Length: 32 Hours
PDUs: 26

Purpose.
This course provides training on basic cost risk analysis principles and fundamentals. The training is intended for the Cost Engineering professional with little or no cost experience in cost risk analysis techniques who will be responsible for the review or preparation of construction contingencies for Civil Works, MILCON and Environmental Remediation cost estimates.

Description.
This is a computer-based course, and is designed to provide a solid introduction to the theory and application of risk analysis problems involving multiple numeric uncertainties (e.g. budget to detailed cost estimating, contingency analysis, and competitive bidding) and demonstrate why risk analysis is necessary, and how to mitigate the probability of having a cost overrun.

Through the use of lectures, visual aids, individual and group practical exercises, the course will provide instructions on: (a) procedures and cost engineering regulations regarding the use of cost risk analysis, (b) basic statistics (c) data gathering, (d) uncertainties identification and quantification, and (e) interpretation and use of the results.

This course will discuss, and provide familiarization and hands on training of the computational tool, Crystal Ball. Crystal Ball is the Corps required software for preparing risk analysis for contingency development.

Prerequisites.
Nominees must be assigned (a) Occupational series: 0800; 0802; 0807; 0808; 0810; 0830; 0850; 1301; 1350; (b) Grade: GS-09 and above, and have completed the Cost Estimating Basics course; (c) Other nominees must obtain CECW-CE approval before attending this course. A pocket calculator and laptop computer with Microsoft Excel and Oracle Crystal Ball is required for this class. Proficiency with Microsoft Excel is required.

CRANE SAFETY

Control Number: **32** Length: 32 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course provides students with an introductory, fundamental but detailed understanding and knowledge of Load Handling Equipment (LHE) as well as USACE and OSHA safety requirements for a crane program, to include rigging, signal personal and rigger requirements. Inspection, maintenance, training, and operational requirements (not certifications) for cranes and hoisting devices are also covered in this 36-hour class. The included field trip proves essential to the understanding of the equipment, rigging and LHE components.

Description.
Areas to be covered in this course include a general but thorough introduction to types of cranes and hoisting equipment, to include common terminology, nomenclature, and components. In addition, discussion and overview of the following will be covered:
(a) Basic design and construction of cranes/hoists to include the basic scientific principles associated with crane/hoisting operations; lots of models, examples, hands-on viewing.
(b) Fundamentals of rigging - includes a variety of rigging gear, components and configurations and potential applications to include the requirements for a naval architectural analysis on floating plant, as well as the components of wire rope and inspection requirements and procedures for wire rope, load blocks, and sheaves; lots of samples passed around and explained.
(c) Crane/hoisting signals.
(d) Operator selection, training and certification requirements to include physical requirements.
(e) Inspection requirements of cranes/hoisting equipment.
(f) Operator aids, safety devices and general safety requirements for cranes/hoists.
(g) Operational and load testing requirements to include frequency as well as conditions that trigger the requirements.
(h) Lift planning procedures, to include assembly/disassembly and critical lifts.
(i) Communication and emergency procedures to include accident prevention and the hazards of power line clearance, and
(j) Similarities and differences between USACE crane/hoist requirements (EM 385-1-1), OSHA requirements, ANSI and consensus standards.
(k) Field trip that provides a hands-on, real-world view of equipment, rigging and set-up, parts, pieces, explanations, etc.
(a) Basic design and construction of cranes/hoists to

include the basic scientific principles associated with crane/hoisting operations; lots of models, examples, hands-on viewing.
(b) Fundamentals of rigging - includes a variety of rigging gear, components and configurations and potential applications to include the requirements for a navel architectural analysis on floating plant, as well as the components of wire rope and inspection requirements and procedures for wire rope, load blocks, and sheaves; lots of samples passed around and explained.
(c) Crane/hoisting signals;
(d) Operator selection, training and certification requirements to include physical requirements;
(e) Inspection requirements of cranes/hoisting equipment;
(f) Operator aids, safety devices and general safety requirements for cranes/hoists;
(g) Operational and load testing requirements to include frequency as well as conditions that trigger the requirements;
(h) Lift planning procedures, to include assembly/disassembly and critical lifts;
(i) Communication and emergency procedures to include accident prevention and investigation and the hazards of power line clearance, and
(j) Similarities and differences between USACE crane/hoist requirements (EM 385-1-1), OSHA requirements, ANSI and consensus standards.
(k) Field trip that provides a hands-on, real world view of equipment, rigging and set-up, parts, pieces, explanations, etc.

Prerequisites.
Nominees should have an occupational need for basic Load Handling Equipment information and related requirements. This course does not provide an in-depth knowledge of cranes and hoists. All grade levels are accepted. Course is specifically recommended for Corps of Engineers Construction QA's, Project Engineers, maintenance foremen/supervisors, safety and health professionals, Environmental Compliance Coordinators, Operational / Maintenance personnel and anyone else with a need to know USACE and contractor crane program requirements to include: basic construction and maintenance safety by stressing vital aspects of following safe work practices and procedures and how and what to monitor for on contractor crane/hoisting operations.
Students should bring clothing appropriate for a field trip to a crane yard (close toe shoes, long pants, weather appropriate outerwear, and work gloves for handling of rigging equipment). The Corps will provide hard hats. Each student must arrive with a laptop with appropriate CAC credentials to access the USACE network in order to access the required Blackboard resources.

Cultural Resources

Control Number: **299** Length: 36 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course provides students with a broad-based understanding of the character and quality of cultural resources and historic properties, a working knowledge of the identification and assessment procedures applied to those resources, and a review of tribal consultation policy and principles that impact agency cultural resources management. The course is designed for all planners, natural resources managers, project managers, and others who will participate in the stewardship and management of cultural resources as well as interact with tribes.

Description.
The course addresses cultural resources, historic properties, and overarching laws and regulations that define significance, mandate management, and prescribe treatment. Students will learn the various types of cultural resource categories and their attributes, quality and values. Students receive an overview of Corps planning, operations, and regulatory management actions that have the potential to affect cultural resources. Focus on the National Historic Preservation Act (NHPA) of 1966, the Archeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act, Executive Order 13175, as well as other statutory requirements introduces students to regulatory responsibilities. This course gives special consideration to the procedural requirements of Section 106 of the NHPA and the interrelationships of the agency, the Advisory Council on Historic Preservation, the State Historic Preservation Office, and consultation with tribes with the opportunity to apply knowledge to case studies. The program also offers an overview of the nature of Corps relations with tribes including an understanding of the Trust relationship, government-to-government relations, treatment of Native American human remains and associated objects and Indian access to sacred sites. State-of-the-art field techniques, methodologies regional overviews, and data management are illustrated.

Prerequisites.
Nominees must be assigned (a) Occupational series: selected 0020, 0100, 0400, 0800 and 1300; (b) Grade: GS-07 or above (water resource planners, rangers, park managers, planners, study managers, designers - anyone potentially involved with cultural resources during the planning, design, or operation of a project). Senior leaders and decision makers at the USACE District and MSC levels are encouraged to enroll in this course offering. Nominees should have attended the Environmental Impact Assessment course and the

PCC1 Civil Works Orientation course, or equivalents.

CW Program Development

Control Number: **10** Length: 28 Hours
CEUs: 2.3 PDHs: 23 PDUs: 23

Purpose.
This training is primarily designed for Civil Works (CW) project delivery team members and program managers with an emphasis on the Civil Works budget/program development, defense, and execution processes. Those with some Civil Works program development experience will benefit the most since this is not an introductory course. It builds on existing experience to provide a comprehensive understanding of Civil Works mission accomplishment, HQ-level programs management activities, the importance of the USACE Project Delivery Business Process (PDBP) in program execution, and includes instruction regarding the HQUSACE interface with Office of Management and Budget (OMB) and Congress.

Description.
The training covers the Civil Works Program Development, Defense and Execution within the USACE Project Delivery Business Process (PDBP), including: (1) the Corps of Engineers civil works organization, the Administration, and the Congressional committees that provide legislative oversight of the civil works program through authorizations and appropriations; (2) program development, including new start and continuing programs, and funding capabilities; (3) program defense, including OMB and Congressional hearings; and (4) program execution, including work allowances, reprogramming actions, performance measurement.

Prerequisites.
This is not an introductory course. Those with experience in Civil Works program management, or who have taken PROSPECT Course 358 will benefit the most from attending course 010. Nominees must be project delivery team members, GS-340 program managers, chiefs of organizations that support the Project Delivery Business Process (e.g., Real Estate, Counsel, and Resource Management). Division and district commanders, deputy commanders with civil works missions, and members of the Senior Executive Service are invited to attend this course.

Dam Safety

Control Number: **28** Length: 32 Hours
CEUs: 2.6 PDHs: 26

Purpose.
This course trains managers, engineers, geologists, technicians, and project operating personnel in FOA engineering, construction, and operations divisions on all aspects of the Corps of Engineers Dam Safety Program. The background and history of dam safety in the Corps is covered along with the multi-discipline design, construction, and operational considerations. Details of planning, conducting, and reporting the results of a periodic inspection are included. Guidance on project surveillance by operation personnel along with the Dam Safety Program are covered in detail. Public awareness and preparedness are included.

Description.
Through lectures, case histories, field visits, and structured student discussions, the course covers all aspects of a dam safety program. The course outlines technical considerations (hydrologic, seismic, geotechnical, electrical/mechanical and structural) as well as the operational requirements (operation, maintenance, surveillance, preparedness, training, and notification). The scope and implementation details of the Dam Safety Program are covered in detail. Presentations, video modules, case histories, and a walk-through inspection are used to effectively present a multi-discipline approach to the successful monitoring and evaluation of Corps of Engineers dams.

Prerequisites.
Nominee must be assigned:
(a) Occupational Series: Selected 0800 and 1350.
(b) Grade: GS and WG, as appropriate, GS-05 or above.
This course is intended for all personnel involved in the design, construction, operation, inspection, and maintenance of Corps dams. Attendees should bring proper attire for field visits, e.g., rain gear, comfortable shoes (no sandals or flip-flops.)

Data Analytics Essentials: From Excel to Power BI

Control Number: **153** Length: 24 Hours

Purpose.
In this course, students will learn the fundamentals of data analytics, a process that involves examining datasets to inform decision-making. With the rapid advancement of data management, processing, and analysis, organizations are generating unprecedented amounts of data, making data analytics a crucial skill for professionals. This course will cover the key components of data analytics, including data collection, processing, cleaning, exploration, interpretation, visualization, and decision-making.

Description.
Students will learn how to apply various techniques and tools to analyze raw data, uncover insights, trends, patterns, and relationships, and inform strategic decisions. The course will introduce students to the Microsoft Power Platform, specifically using Power Query and Power Pivot, which are essential tools for data analytics and visualization. Then transition onto MS Power BI.
Through a dynamic combination of lectures, discussions, and hands-on exercises, students will develop a comprehensive understanding of key data analytics concepts using MS Excel and MS Power BI. Course topics will include:
• Data Management: collection, processing, and cleaning
• Data Insights: exploration and visualization
• Data-Centric Decision Making: interpretation and strategic decision-making.
By the end of this course, students will be able to transform raw data into meaningful insights, optimize

Prerequisites.
Each student is required to bring a laptop equipped with valid CAC credentials for the USACE network to ensure access to all required Blackboard resources. Additionally, all students should have a basic knowledge of Microsoft Excel functions and functionality.

DESIGN BUILD CONSTRUCTION

Control Number: **425** Length: 32 Hours
CEUs: 1.9 PDHs: 19

Purpose.
This course provides current information to Corps of Engineers personnel and stakeholders doing business with the Corps of Engineers on the latest developments, lessons learned, best practices, and processes for the use of Design-Build as a project delivery method.

Description.
Topics included in this course are: an overview of the Design-Build delivery method; acquisition planning; development of technical requirements; special contract requirements and clauses; solicitation, proposal evaluation, contract award; contract administration; industry best practices and lessons learned.

Prerequisites.
Nominees should be involved in the planning, design, acquisition or construction of projects as a stakeholder, or design and construction agent. Experience in Design-Build project delivery is not required as this course provides basic, yet thorough review of Design-Build procedures including Engineering and Design, Construction, Contracting, and Project Management. Target Grades: GS-07 to GS-13.

Development of Project Partnership Agreements

Control Number: **315** Length: 32 Hours
CEUs: 2.7 PDHs: 27

Purpose.
This course provides the basic knowledge, skills, and abilities needed to develop, negotiate and process approval agreements for (Project Partnership Agreements (PPA), Design Agreements (DA), and Feasibility Cost Shared Agreements (FCSA)) used for implementation of cost shared Civil Works water resources development projects and the supporting documents necessary for the agreement packages. Lecturers and instructors include HQUSACE staff, Division staff, and a guest speaker.

Description.
Topics include: (a) Development, negotiation, and processing of Agreements (such as PPA, DA, and FCSA) for cost shared Civil Works water resources development projects; (b) Implementation of cost shared Civil Works projects including cost sharing policies; (c) Planning, Policy, Programs, Real Estate, and Legal aspects and considerations in development of Agreements; (d) In-Kind Contributions authorities; (e) Policies and procedures to account for project funds including preparation of Federal/Non-Federal Funds Allocation Table and determining non-Federal proportionate share; (f) Requirements for accelerated, contributed, and advanced funding; (g) Non-Federal Sponsor Self-Certification of Financial Capability Form; and (h) Project examples and experiences.

Prerequisites.
Nominees must be assigned (a) Grade: GS-09 to GS-15; and (b) current responsibilities in Project Management; Study Management; Engineering Management; Planning; Programs; Real Estate; Counsel; and Cost Share Control Record Managers or others assigned to the Office of Resource Management and Internal Review.

DIVE SAFETY ADMIN

Control Number: **175** Length: 40 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course provides Corps of Engineers employees who are assigned as diving coordinators, alternate diving coordinators, Dive Inspectors and Safety Office Diving Safety Representatives with the necessary skills, knowledges, and abilities to perform their assigned duties. This training will provide students with state-of-art technology and methodology to evaluate underwater diving operations and effectively manage diving contingencies. NOTE: This course is required for all diving coordinators and alternate diving coordinators, and is recommended for all Safety and Occupational Health Office Diving Safety Representatives.

Description.
Students will become familiar with diving systems and methodology, including support activities and dive equipment. This course consists of classroom presentations and practical exercises in dive planning and execution involving actual dive operations. The focus of the course is on Safety Requirements, Dive Planning, Hazard Analysis, Risk Management Emergency Management and Contract Administration. Sessions pertinent to underwater diving operations will include, but are not limited to, the following topics and activities: (a) diving physics; (b) diving physiology; (c) diving medicine; (d) modern diving systems and support equipment; (e) SCUBA equipment and operations; (f) surface supplied air equipment and operations; (g) decompression principles & associated tables; (h) modern diving accident management techniques; (i) working dive planning; (j) diver supervision principles and practices (k) preparation and use of Activity Hazard Analyses; (l) USACE, OSHA, and US Navy diving regulations (ER 385-1-86, EM 385-1-1, 29 CFR 1910, and US Navy Diving Manual); and (m) management of the diving function.

Prerequisites.
Students for this course must have a preapproval acknowledgement by the District Dive Coordinator (DDC) as a current or projected assignment as a District Diving Coordinator, Alternate District Diving Coordinator, Dive Safety Inspector, or Safety and Occupational Health Office Diving Safety Representative. Students must participate in all lectures, written and practical exercises, and score at least 70 percent on the comprehensive post-course examination to pass the course. Exceptions or deviations to any of these prerequisites shall be approved by the HQUSACE Safety and Occupational Health Office.

Diving Refresher

Control Number: **259** Length: 74 Hours
CEUs: 6.9 PDHs: 69

Purpose.
This course provides Corps divers and diving supervisors with the latest technical and managerial data as it relates to underwater diving. This course is required at 4-year intervals after completing the Working Diver course as stated in ER 385-1-86 for those persons working with underwater diving programs. Students must satisfactorily complete all aspects of the training to receive certification.

Description.
Through lectures and demonstration sessions, this course covers (a) regulatory requirements, (b) dive planning, (c) inspections, (d)deep dive, (e) identification and use of Activity Hazard Analysis, (f) dive preparation, (g) diving physics/gas laws, (h) diving physiology, (i) diving psychology and types of stress, (j) diving medicine, (k) SCUBA equipment use and operations, (l) Surface Supplied Air equipment, (m) decompression actions, equipment, principles and associated types of tables, (n) diving accident management, and (o) dive operations. All attendees must make at least 70 percent on comprehensive post-course examination for recertification. Attendees must participate in and complete all phases of instruction. Failure to participate in all class activities will be cause for course failure.

Prerequisites.
(a) Students for this course must have a current or projected assignment to a position requiring underwater diving skills and, prior to attending, must complete Course 035, Working Diver and provide the certification certificate from that course. Failure to provide evidence of diver certification will be cause for rejection; (b) Nominees must successfully complete a diving medical examination as detailed in ER 385-1-86 within the past 11 months and provide a copy of the completed medical form to the training agent at least two weeks prior to the class start date; (c) proof of the last four government dives within the last 11 months; and (d) students must participate in all lectures, written and practical exercises, and score at least 70 percent on the comprehensive post-course examination, two diving practical examinations, and quizzes administered during the course to receive the diver certification. Exceptions or deviations to any of these prerequisites shall be approved by the HQUSACE Safety and Occupational Health Office.

Dredge Cost Estimating

Control Number: **118** Length: 36 Hours
CEUs: 2.8 PDHs: 28

Purpose.
This course provides an understanding of cost engineering for dredging projects. Methodology for cost engineering of pipeline, hopper, and mechanical dredging is presented. Training is provided on the use of CEDEP, the official dredge estimating software program.

Description.
Through lectures, discussion, demonstrations and class problems, the course covers the current requirements for the preparation of dredge cost estimates. Specific emphasis is placed on definitions, equipment selection, productivity and cost detail development in the preparation of cost estimates for projects utilizing pipeline, hopper, and mechanical dredges. These principles are further discussed in relationship to the current version of the CEDEP software.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0800; 0807; 0808; 0810, 0830; 0850; 1301; 1350. (b) Grade: GS-05 or above; Nominees are those who have a need to learn more about cost estimates for dredging projects. These employees are envisioned to work in the engineering, operation, planning, or construction divisions of Corps Districts or Divisions. Their educational background should not be less than that of an engineering technician or equivalent. (c) Nominees should be knowledgeable of computer software and computer spreadsheet programs. Dredging Fundamentals is a suggested (not required) class to be taken prior to this course.

DREDGING FUNDAMENTALS

Control Number: **333** Length: 36 Hours

Purpose.
The purpose of the course is to provide the student with the fundamental knowledge of dredging theories and practices associated with the USACE dredging program.

Description.
Through lectures, group discussions, examinations, and a field trip, this course teaches the student fundamental dredging theory and accepted dredging practices in addition to basic information on how Corps dredging projects are authorized, funded, engineered, managed, and maintained. A brief overview of dredge estimating, dredging safety, hydrographic surveys, and dredging contract administration is also provided. A field trip to see dredging equipment and/or dredging-related activities or navigation features is included to help the student understand the material taught in the classroom. This course is a prerequisite for the Dredge Cost Estimating course.

Prerequisites.
Nominees must be assigned
(a) Occupational Series: Dredging related; Navigation related;
(b) Grade: WG-04/GS-04 and above (or equivalent).

Earthwork Construction - Quality Verification

Control Number: **40** Length: 32 Hours
CEUs: 2.4 PDHs: 24

Purpose.
This course provides the participant with proper earthwork inspection techniques and improves quality assurance management on construction projects. Insight is also provided as to the technical reasons behind construction requirements and how these requirements contribute to successful construction.

Description.
Through lecture, conference sessions, laboratory demonstrations and practical exercises this course covers the field of soils identification, soil sampling and testing, and techniques for earthwork inspection and testing. This course primarily teaches earthwork embankment construction, although some material pertaining to building foundation preparation is included.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0801, 0802, 0809, 0810, 0830, and 0850; (b) Grade: GS-05 to 09. Students should have a current or projected assignment as a general or earthwork construction inspector or related duties at the field level. This course is also well suited for junior engineers as part of the training provided in Engineer-In-Training programs, and for Corps division, district, and field office personnel directly concerned with construction operations. Nominees must not have attended this or a similar course within the past 5 years.

Economic Analysis MILCON

Control Number: **101** Length: 24 Hours
CEUs: 2.0 PDHs: 20

Purpose.
This course explains the fundamental principles and procedures for developing economic analyses (E/A) in support of military construction and capital investment projects. The practical application of economic principles is provided through "hands-on" computer training sessions in which participants develop economic analyses using the Army's economic analysis package, ECONPACK. Economic Analysis is an integral and required justification for military construction projects and capital investment proposals. This course is specifically designed to enable participants to prepare adequate, analytically accurate economic analyses in support of project funding requests to OSD and Congress. Lectures, work group exercises, practical exercises, and computer sessions are used to familiarize participants with the theoretical principles and automated capability to formulate, develop, document, and evaluate E/A.

Description.
Specific topics include (a) an overview of economic analysis as it relates to the planning, programming, and review process; (b) the economic analysis process: the logical sequential process used to develop E/A; (c) life-cycle cost analysis: terms and definitions; (d) the concept of equivalence, the time value of money, and the discounting and treatment of inflation; (e) life-cycle cost calculations: net present value, savings-to-investment ratio, discounted payback period; and (f) sensitivity analysis: testing data uncertainties. Students, using the automated system, ECONPACK, will perform calculations, document, and report analysis results. The course covers the automatic transfer of completed economic analyses to a DD Form 1391.

Prerequisites.
Nominees must be assigned to current positions involved with planning, preparing, programming, or reviewing requests for government military construction or military capital investment projects.

Economics for Planners (Planning Core Curriculum Course 4)

Control Number: **265** Length: 32 Hours

Purpose.
TBD

Description.
TBD

Prerequisites.
TBD

Ecosystem Restoration, Design

Control Number: **280** Length: 32 Hours
CEUs: 2.7 PDHs: 27

Purpose.
The restoration and protection of environmental resources in our Nation's ecosystems is a central mission in the Corps of Engineers Civil Works program. This course will provide an interdisciplinary perspective on ecosystem restoration, protection, and management. Students will learn the principles and vocabulary of selected disciplines outside their own and will become familiar with relevant case studies and issues in planning and conducting ecosystem restoration projects. At the end of the course, students will have a more holistic understanding of ecosystems and the requirements for successfully restoring, protecting, and managing them.

Description.
Through a series of lectures, practical exercises, and field trips, students will be introduced to basic concepts in ecology, hydrology, geomorphology, and biogeochemistry as they interrelate within a given ecosystem. These basic concepts will be explored and evaluated for their roles in the restoration, protection, and management of degraded ecosystems. Emphasis will be on ecological interactions and scale-dependent relationships among the physical environment, biota, and ecosystem processes and disturbances. The structure and function of an ecosystem will be discussed and related to real-life situations and projects, as appropriate, through field visits. Relevant models and computerized tools will be demonstrated (e.g., decision support systems, monitoring metrics, etc.).

Prerequisites.
(a) This course is meant primarily for engineers and scientists involved in the planning, operation, and management of ecosystem restoration projects, including permits under the Clean Water Act that would involve ecosystem restoration; (b) Grade: GS-09 and above; (c) A Bachelor of Arts or Science degree or higher; and (d) Occupational series: 0200, 0100, 0400, 0801, 0807, 0810, 0819, 0905, 1301, 1315, 1350.

Electrical Design I

Control Number: **373** Length: 36 Hours
CEUs: 3.3 PDHs: 33

Purpose.
This course clarifies criteria and practices for electrical engineer designers to assure an adequate design and review of electrical features of government projects and to improve design quality and incorporate AT/FP requirements. The course will develop the complete electrical design of a typical military facility, including sizing of service, distribution equipment, feeder and branch conductors, transformers, panelboards, grounding components, fire alarm and fire pump, exterior and interior lighting, lightning protection, energy savings, protective devices, coordination and power requirements.

Description.
(a) INTRODUCTION AND DESIGN PROCESS: This session discusses project development and provides an overview of DD Form 1391, design construction and post completion steps, and cost codes. An overview of the site plan, floor plan, and one-line diagram is presented.

(b) DESIGN-BUILD: This session will discuss the Design-Build process in general and the development of the electrical requirements for the Request for Proposals (RFP) package.

(c) ONE-LINE DIAGRAM: This session develops a one-line diagram from the electrical distribution system connection to the building service entrance equipment. Emphasis is on equipment selection and sizing in accordance with DoD criteria, codes, and good engineering practice. Protection and coordination requirements will be discussed.

(d) LIGHTING DESIGN: This session includes selection and application of interior and exterior lighting fixtures and emergency and exit lighting systems. Interior lighting calculations (using the zonal cavity method) and exterior lighting calculations (using the point-to-point method) are discussed and demonstrated.

(e) ELECTRICAL CALCULATIONS: This session includes calculations for branch circuits and feeders, fire-pump motor circuits, and panel schedules; short-circuit currents (using the per-unit system and the point-to-point method), voltage drop calculations, and demand and diversity factors.

(f) FIRE ALARM SYSTEMS: This session discusses the specific application of NFPA 72 and 101 to the design of the office building. Placement of notification appliances and signaling devices are determined along

with developing the riser diagram.

(g) ELECTRICAL POWER SYSTEMS: This session discusses the electrical design requirements for UPS, harmonics, transformers, surge protection, grounding, and emergency power. Energy savings and design considerations will be presented.

(h)CLASSROOM EXERCISE: Students design a building's electrical system.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0850,and 0855. Those in 0801 series or equivalent electrical professions who have an electrical background may also attend. Nominees should be electrical or electronic engineers or have electrical engineering responsibilities with a basic background in the practical applications of electrical and electronic projects.

Electrical Design II

Control Number: **374** Length: 36 Hours
CEUs: 3.3 PDHs: 33

Purpose.
This course clarifies criteria and practices for electrical engineer designers to assure an adequate design and review of electrical features of government projects and to improve design quality. The course will introduce the basics of electrical harmonics, power system configurations, special occupancies, supplemental power systems, electrical exterior design, electric vehicle charging, control wiring, arc flash, public address, backup power systems, criteria and design requirements, lightning protection, and cathodic protection. These topics will be reinforced through class exercises.

Description.
Specific topics include electrical harmonics, power system configurations, special occupancies, supplemental power systems, electrical exterior design, electric vehicle charging, control wiring, arc flash, public address, backup power systems, criteria and design requirements, lightning protection, and cathodic protection. Students will participate in multiple classroom exercises to reinforce the lesson topics.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0850,and 0855. Those in 0801 series or equivalent electrical professions who have an electrical background may also attend. Nominees should be electrical or electronic engineers or have electrical engineering responsibilities with a basic background in the practical applications of electrical and electronic projects. Course #373 Electrical Design 1 is not a prerequisite.

Electrical Quality Verification

Control Number: **42** Length: 36 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course provides the participant with (a) requirements and techniques of electrical quality assurance to comply with contract requirements; (b) increased knowledge of materials, equipment, installation, and quality assurance techniques; and (c) training in interpreting plans and specifications and the National Electrical Code (NEC).

Description.
Through lectures and directed conference sessions, this course presents methods of quality assurance for interior and exterior distribution, motors, controls, lighting, special alarm systems, grounding and hazardous locations, and other electrical installations. It also places emphasis on enforcement of contract requirements, compliance with electrical safety, the electrical code, and the contractor's obligation for quality control under the Corps' quality management program.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0801, 0802, 0809, 0810, 0830, or 0850; (b) Grade: GS-05 or above, and equivalent. Students should have a current or projected assignment as an electrical or general quality assurance representative. Engineers are exempt from these eligibility requirements.

Electronic Security Systems Design

Control Number: **360** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course is directed toward a variety of professional disciplines that typically make up an electronic security design team, including: physical security specialists, anti-terrorism and force protection officers, engineers, technicians, planners, and project managers. Each student is given the basic knowledge and skills necessary to contribute to an ESS design effort.

Description.
Students are provided a solid foundation in all aspects of ESS technology and design. Instructors with extensive ESS qualifications and experience explain the basic theory, operation, and application of all ESS components--including intrusion detection systems (IDS), access control systems (ACS), Video Systems, data transmission systems and illumination sources. Requirements and techniques for effective system integration using robust communications, command, and control (C3) infrastructure are emphasized. After completing the course, students should be proficient at conducting an ESS site survey, developing an ESS concept design, and performing quality assurance (QA) inspections and systems acceptance testing during the ESS installation phase. Throughout the course students are encouraged to actively participate by asking questions, analyzing case studies, and solving practical design problems.

Prerequisites.
Grade: GS-07 (or Military E-5) or higher involved with using, planning, designing, or managing electronic security systems.

Engine-Driven Generator System Design and Quality Verification

Control Number: **106** Length: 32 Hours

Purpose.
This course provides a general familiarization with the components and systems that make up a diesel generator and teaches the proper testing and checkout procedures to be followed prior to accepting generating units from the construction contractor.

Description.
Through lectures, visual aids, and demonstration sessions, this course covers such subjects as engine and generator basics, fuel systems, heat transfer systems, generator exciters and regulators, governors, instrumentation, design criteria, various factory and field test procedures, automatic transfer switches, and typical installation problems. A portion of this course will utilize a diesel generator unit for performing typical field tests and requires hands on learning.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0802, 0809, 0810, 0830, and 0850; (b) Grade: GS-07 or WG-07 or above. Nominees should have current or projected responsibilities that include power generation specification, procurement, installation, testing or operation. The broad content of the course is beneficial for technically-oriented construction, design, and maintenance personnel. Although this is not intended to be a maintenance course, maintenance personnel should benefit from this course. Recommend that nominees complete the Electrical, Mechanical, or General Quality Verification Courses prior to taking this course. Engineers are exempt from this prerequisite requirement.

ENVIRONMENTAL IMPACT ASSESSMENT

Control Number: **169** Length: 32 Hours
CEUs: 2.9 PDHs: 29

Purpose.
Upon completion of this course, students will be able to evaluate proposed U.S. Army Corps of Engineers (USACE) actions by analyzing their potential for environmental impacts to determine and justify the appropriate level of NEPA analysis required for work commonly undertaken by the USACE, including planning and engineering studies, the operation and management of Federal projects, actions on military properties, and/or regulatory permits.

Description.
This comprehensive course provides students the ability to evaluate proposed U.S. Army Corps of Engineers (USACE) actions and determine the appropriate level of NEPA analysis required for any given project. The curriculum integrates the complex history of NEPA with the most current legal and policy landscape, including recent Supreme Court rulings, executive orders, and new Department of Defense implementing procedures. Through a blend of lectures, discussions, and practical exercises, at the end of the course, participants will be able to analyze environmental impacts for Civil Works planning studies, operation/management actions, regulatory permits, and/or military construction projects. Key skills developed include writing defensible Purpose and Need statements, identifying an appropriate array of alternatives, determining significance, leveraging AI for effective writing, and justifying the level of NEPA analysis.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0020, 0100, 0400, 0800, and 1300 or by demonstration of special needs related to job responsibilities; (b) Grade: GS-07 or above.

ENVIRONMENTAL LAWS & REGULATIONS

Control Number: **170** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
After completing the course, students will be able to (a) list major federal statutes designed to protect the environment; (b) summarize the major provisions of each federal environmental law and relationship to activities of the Corps of Engineers; (c) find the federal and state environmental statutes and regulations pertinent to a specific Corps activity, given access to a reference library; (d) identify and state legal requirements for environmental protection related to specified Corps activity, given access to suitable reference materials.

Description.
This is a general survey course designed for non-attorneys or for attorneys with limited background in environmental law. Topics include federal laws and regulations for environmental protection; pollution standards and variances; congressional and judicial developments; economic and technical difficulties in meeting standards; relation of the Corps of Engineers to state and federal agencies in meeting standards and enforcing laws; methods of monitoring pollution; legal penalties; litigation techniques; the Rivers and Harbors Act of 1899 regulatory provisions; the National Environmental Policy Act (NEPA); Executive Order 11514; the NEPA regulations of the Council on Environmental Quality; the Federal Clean Water Act; the Federal Clean Air Act; the Resource Conservation and Recovery Act; the Toxic Substances Control Act; the Endangered Species Act; the Fish and Wildlife Coordination Act; the Historic Preservation Act; the Noise Control Act; the Federal Environmental Pesticide Control Act; the Coastal Zone Management Act; regulations of the Environmental Protection Agency; and state laws and regulations.

*This course is not intended for personnel primarily involved with hazardous and toxic waste projects and does not include detailed coverage of the Resource Conservation and Recovery Act (RCRA), the Comprehensive, Environmental Response, Compensation and Liability Act of 1980 (CERCLA), or the Superfund Amendments and Reauthorization Act (SARA) of 1986.

This course is ISEERB (Interservice Environmental Education Review Board) approved. It has been reviewed by subject matter experts from DOD Components and found to be suitable to more than one agency.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0020, 0100, 0400, 0800, and 0900; (b) Grade: GS-07 or above. Nominees should have the abilities stated in the Environmental Impact Assessment course.

Environmental Considerations in Civil Works

Control Number: **408** Length: 36 Hours
CEUs: 3.1 PDHs: 31

Purpose.
This class surveys environmental topics needed for compliance for USACE Civil Works projects. Participants learn to recognize the basis and key components of NEPA documents consistent with applicable environmental laws, regulations and procedures necessary to conduct civil works planning, design, construction and operations. Course includes field trip and class exercises to demonstrate and apply course learnings.

Description.
The class consists of a series of modules and exercises summarizing the many laws, regulations, and procedures governing environmental aspects of the Corps of Engineers civil works process. Modules include an overview of the compliance under the National Environmental Policy Act, and the contents and procedural requirements for the preparation of Environmental Assessments and Environmental Impact Statements. Environmental compliance discussions address the: Endangered Species Act, Fish and Wildlife Coordination Act, National Historic Preservation Act, Clean Water Act, Clean Air Act, Coastal Zone Management Act, Magnuson-Stevens Fishery Management Act, and the Wild and Scenic Rivers Act. Other topics include mitigation, cost effectiveness analysis, environmental sustainability, and invasive species. In addition, students are provided guidance on ecosystem restoration authorities and practice under both the continuing authorities and general investigation programs. Ecosystem and other impact assessment methods are reviewed, with exercises focused on the selection of assessment procedures for habitat evaluations.

Prerequisites.
Nominees should be newly assigned to civil works, engineering, construction, operations, or planning programs. Student experience should be less than 5 years in fields having a nexus with a need for an understanding of environmental considerations in the civil works process. Grade level: GS-9 through GS-12.

ENVIRONMENTAL REGULATIONS PRACTICAL APPLICATION

Control Number: **398** Length: 36 Hours
CEUs: 3.1 PDHs: 30

Purpose.
This course is designed to further the student's understanding and ability to apply the technical requirements of various major federal environmental regulations. This course consists of a review of the technical application of selected environmental requirements pertinent to compliance issues. It will not consist of an exhaustive, detailed study of environmental statutes and regulations.

Description.
This course is comprised of discussions and practical exercises pertaining to the technical application of various environmental regulations such as RCRA waste classification and generator standards, used oil management, NPDES wastewater and stormwater requirements, SPCC plans, PCB management, Clean Air Act regulations, USTs, SWDA requirements, Spill reporting, Pesticide management, Hazardous materials transportation, and EPCRA requirements. The course also includes a brief introductory session on environmental management systems addressed in EO 13148. This course focuses on the practical application of these regulations during day-to-day compliance activities at DoD installations, Corps construction projects and Civil Works Projects and Facilities.

Prerequisites.
Nominees must have worked at least one year on environmental compliance projects, environmental projects, military construction projects, or civil works environmental compliance projects or have attended an environmental laws and regulations course within the past three years. Target audience includes engineers, scientists (chemists, industrial hygienists, geologists, etc.), Construction personnel, environmental compliance officers, ECAS and ERGO coordinators, environmental protection specialists, and operations personnel responsible for the technical application of various environmental compliance requirements.

Environmental Stewardship 101

Control Number: **411** Length: 32 Hours

Purpose.
Students will gain an understanding of the guiding principles of the USACE Environmental Stewardship (ENS) program and will have an awareness of the resources available to manage a program at the project level. Project, District, and MSC level managers will also explore skills needed to plan and execute local, regional, and national agency initiatives. Greater awareness of tools, resources, and knowledge sources available to the manager will also be shared. At the end of this course students will be able to identify and access tools, resources, and regulations necessary to successfully plan and execute the environmental stewardship mission at their respective level of operation.

Description.
This course introduces the concepts of natural resource management by providing a background on the USACE approach to monitoring, managing, and sustaining USACE lands and waters.
As land managers, it is often difficult to see or understand the consequences of the decisions, actions, or existence on the environment and surrounding communities. The purpose of this class is to show how management affects the environment at a local, regional, and national scale. The class will provide the foundation and fundamentals of all aspects of the Environmental Stewardship (ENS) program, with a focus on the individual and collective impact on the quality of the overall environment through the management decisions made on USACE lands and waters. Case studies are used to examine an array of ecological, biological, agricultural, technological, economic, social, political, and other issues associated with managing USACE lands and waters. Students will receive a foundation to help make informed decisions about the management of USACE lands and waters to be better stewards of our natural resources.
This course covers all aspects of the environmental stewardship program. An overview of the authorizations and regulations which guide the environmental stewardship program will be presented. Students will be introduced to topics such as master plans and operations management plan development, commodities management, and habitat management for fish and wildlife. Aquatic and land management strategies for various habitats such as forest, grassland, and wetlands will be discussed through lectures, case histories, field visits, and structured student discussion. The student will also be oriented to the different tools utilized within the program such as OMBIL, CWIFD, GPS/GIS and how they are used to collect, organize, and inventory data

such as boundary, invasive species, cultural resources, habitat types, and budget.

Prerequisites.
Each student should be in a job series/position that requires familiarity with the Environmental Stewardship mission of USACE. Job series include, but are not limited to: 0401, 0460, 0025, 0802, 0810, 1640. This is an introductory level course targeting students at the GS 05, 07, 09 level or those that are new to the ES mission who have responsibilities for administering any aspect of the program.

ESTIMATING FOR CONSTRUCTION MODIFICATIONS

Control Number: **180** Length: 36 Hours
CEUs: 3.0 PDHs: 30 LUs: 29 PDUs: 28

Purpose.
The course objective is to cover the various elements of a cost estimate (e.g., labor, material, equipment, job office overhead, home office overhead, and bond and profit costs) and how to effectively and efficiently develop an estimate for construction modifications. This PROSPECT training delivers intermediate level instructions and provides computer-based tools to support in the preparation of estimates for construction contract modifications within USACE policies and procedures.

Description.
Through computer-based tools, lectures, hands-on exercises and case study sessions, this course covers the various elements of a cost estimate (e.g., labor, material, equipment, job office overhead, home office overhead, bond and profit costs) and how to effectively and efficiently develop an estimate for construction modifications. Also covered in the course are the estimating procedures for time extensions, delays, suspensions, impacts to both the changed and unchanged work, acceleration, extended home office overhead costs (Eichleay) and the benefit of the well prepared estimate in negotiations of a final modification settlement.

Prerequisites.
Prerequisite: Nominees may be from (a) any civilian occupational series or military specialty; (b) Grade: GS-07 or above and comparable military with a current or projected involvement in the preparation, review, or use of construction cost estimates for contract modifications. Students must be proficient in the use of a personal computer. Prior knowledge of Microsoft Excel is required. This course is highly desirable for USACE construction managers and cost engineers.

Recommended Prerequisite Training: Student should have completed the Cost Estimating Basics (#181), or possess a firm understanding of basic estimating skills and principles.

Finance and Accounting

Control Number: **12** Length: 28 Hours

PDUs: 28

Purpose.

To enhance the attendee's knowledge and understanding of USACE finance and accounting policy and managerial accounting principles in USACE.

Description.

The concepts of finance and accounting policies and procedures in the Corps of Engineers are presented. Emphasis is placed on professional accounting standards and requirements, managerial accounting functions, and compliance with the Chief Financial Officers' Act. Credit towards the DoD FM Certification can be earned in up to five competencies; review the FM Online site for more information.

Prerequisites.

Nominees must be assigned in CP-11 in one of the following Occupational Series: 0510 Accountant; 0501 Financial Analyst; 0505 Financial Manager; 0511 Auditor; 0560 Budget Analyst. Participants must be at GS-07 grade level or above. Students must be Corps of Engineers employees, DA interns assigned to USACE Resource Management, or foreign nationals working in USACE Resource Management Offices. Contact the course Program Manager for any exceptions.

Fire Sprinkler Systems Design

Control Number: **33** Length: 36 Hours

Purpose.

This course teaches the basic knowledge and skills necessary for the design, calculation, and review of automatic fire sprinkler systems. The Corps of Engineers requires personnel involved in fire suppression system design to be familiar with all required fire suppression systems.

Description.

This course teaches the basic knowledge and skills necessary to perform design, hydraulic calculations, inspection, and testing of fire sprinkler systems for military facilities, as well as the testing and analysis of fire pumps and water supplies. It also identifies techniques for reviewing construction shop drawings

Prerequisites.

Nominees must meet the following criteria: (a) Occupational Series: Selected 0800, (b) Grade: GS-07 to GS-11; (c) students must be involved in design/construction of fire extinguishing systems as part of their duties or require this knowledge in their work.

Floating Plant Safety

Control Number: **81** Length: 28 Hours
CEUs: 2.3 PDHs: 23

Purpose.
This introductory course provides personnel with current safety and health information with which they will be able to recognize required safety and health elements of the Corps of Engineers and contractor owned floating plant and dredging equipment and/ or operations. The intent of this training is to familiarize students with pertinent safety and health requirements, including the Corps of Engineers Safety and Health Requirements Manual (EM 385-1-1), US Coast Guard requirements, applicable Code of Federal Regulations, and other industry standards pertaining to floating plant and dredging equipment and operations.

Description.
This introductory course is designed for Government personnel who will have responsibility for purchasing, maintaining, inspecting, or operating floating plant, dredging equipment and/or operations subject to the requirements of EM385-1-1. Some of the specific areas covered in this course include: (a) overview of applicable safety standards; (b) types of floating plant/dredges; (c) in-depth review of Chapter 19 of EM-385-1-1; (d) reviewing contractor safety submittals; (e) contractual safety requirements and/or specifications; (f) electrical safety on floating plant; (g) fire prevention and required on-board equipment; (h) rigging and hoisting equipment; (i) confined space and environmental requirements; (j) basic hazard recognition and reporting requirements on a floating plant; (k) on-board inspections of floating plant (practical exercise); (l) safety program management; and (m) contingency/emergency plans. Methods of instruction include open discussions, lectures, videos, on-site visit, and practical exercises.

Prerequisites.
Nominees should include those identified to become dredging inspectors, quality assurance representatives, project and resident engineers, safety specialists, managers and/or engineers, vessel operators and crew, maintenance personnel, and personnel in other career fields that have limited experience with floating plant and dredging safety. Students should bring clothing appropriate for a field trip aboard an operating vessel, normally located on open deck areas. Safety and/or athletic shoes are acceptable for secure footing on open deck areas. The Corps will provide PFD's, hard hats, and hearing protection. A picture ID is required.
Each student must arrive with a laptop with appropriate CAC credentials for the USACE network in order to access the required Blackboard resources.

Flood Frequency Analysis

Control Number: **123** Length: 36 Hours

Purpose.
This course provides a basic understanding for the correct application of the Interagency Committee on Water Data guidelines on computation of flood flow frequencies. The computer software HEC-SSP is used throughout the course.

Description.
This course enables the participant to make technically sound and efficient discharge-frequency estimates. The course focuses on the theoretical basis for frequency analysis, application of techniques contained in the "Guidelines for Determining Flood Flow Frequency," Bulletin 17B, and application of the computer program HEC-SSP. The course is intended for engineers, hydrologists, and others involved in developing discharge-frequency estimates at gaged and ungaged locations.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0800, 1300, and 1500; (b) Grade: GS-07 or above. Course nominees should be engineers who perform professional work in the fields of hydrology and hydraulics. Nominees should have one or more years of experience in these areas. It is suggested that course participants be in positions where, in the next year or two, they will be involved in developing frequency curves, performing regional analysis, or determining generalized skew coefficients. Course nominees must have completed a college-level statistics course in order to succeed in this class.

FORMAL SOURCE SELECTION

Control Number: **183** Length: 28 Hours
CEUs: 2.5 PDHs: 25

Purpose.
This course provides basic skills to ensure acquisition teams are thoroughly trained in the regulatory and prescribed procedures mandated for proper execution of the formal source selection process. This process covers the evaluation, documentation and selection of contract awards by individuals other than the Contracting Officer. Through instruction and group exercises, students will gain the technical expertise needed to implement the required evaluation and selection procedures.

Description.
Do you see yourself as a participant in an upcoming source selection? This course prepares individuals to effectively enhance their participation on a source selection team. This course includes the latest best practices for (1) Roles and Responsibilities of source selection team, (2) Acquisition Planning, (3) Procurement Integrity Act, (4) Developing Appropriate Evaluation Approaches/Criteria, (5) Documenting the evaluation, (6) Negotiation and Contract Award, (7) Notification and Debriefing. Course includes individual and group practical exercises.

Prerequisites.
This course is intended for individuals who are participating or expect to participate as an acquisition team member/participant in the source selection process. Potential participants include: (1) Contracting 1102 series, Engineer 800 series, Program Managers, and Contingency Contracting Officers, (2) Subject Matter Experts requested to participate as members or advisors, i.e., Counsel, Resource Management, Cost Price Personnel, (3) External customer evaluator representatives of requirements received for source selection evaluation.
NOTE: This course is not open to Contractors. Course requirements include a 70% passing score on the final assessment.

Fundamentals of Fire Protection Engineering and Life Safety

Control Number: **6** Length: 36 Hours

Purpose.
This course teaches architects and engineers the necessary skills and knowledge required to implement the fundamental considerations of fire protection in building design and construction. After completing the course, the student should be able to review basic fire protection analyses and drawings more efficiently.

Description.
The course covers basic fire protection for facilities. The course includes instruction on fire-rated construction, building and life safety codes, exit requirements, special hazard protection, and general requirements of fire suppression systems, fire alarm and detection systems, and water supplies.

Prerequisites.
Nominees must meet the following criteria: (a) Occupational Series: Selected 0800, (b) Grade: GS-07 or above, (c) students should have a current or projected assignment in a safety office, in an engineer design section, in a construction office, or as a project manager with duties which require a technical knowledge of fire protection engineering principles.

Fundamentals of Geotechnical Engineering and Geology

Control Number: **111** Length: 28 Hours

Purpose.
The purpose of this course is to equip students with essential skills and knowledge in geotechnical engineering and geology.

Description.
Students will learn fundamental skills and techniques related to the risks associated with geotechnical engineering and geology, site characterization, report writing, and the role of the Geotechnical and Geology function within the overall mission of the organization.

Prerequisites.
GS 5—GS 12 Geologists and Geotechnical Engineers

Fundamentals of Sustainment, Restoration, and Modernization (SRM) Project Management

Control Number: **87** Length: 36 Hours

Purpose.
tbd

Description.
tbd

Prerequisites.
tbd

Fundamentals of Wetlands Ecology

Control Number: **272** Length: 36 Hours

Purpose.
The restoration of fish and wildlife habitat and other wetland functions is a high priority project purpose in the civil works program. Wetlands typically comprise a major portion of the fish and wildlife habitat restoration projects currently being planned by Corps districts. However, additional wetland functions such as improvement of water quality are becoming increasingly recognized for their importance in many Corps' programs. Corps personnel who have no, or only limited, experience or education with wetland ecosystems need to know the fundamental concepts of wetlands science and management. This course provides an introduction and overview of basic wetland ecological concepts and principles in the context of planning and operating civil works environmental and mitigation projects.

Description.
Students are provided with state-of-the-art basic knowledge of wetland flora and fauna, hydrology, soils, and ecology through classroom presentation and field trip participation.. The course emphasizes wetlands functions and values in an ecosystem perspective. Both saltwater and freshwater wetlands will be addressed in the course. The relationship of wetlands to adjacent terrestrial and deep water habitats, along with wetlands succession and dynamics, are discussed. This course provides the base working level fundamentals in the wetlands ecology area and may also serve to update students in current developments in wetlands science. While the focus of this course is not on wetlands delineation or regulatory (Section 404) issues, regulatory personnel would benefit from the broader overview of wetlands ecology. This course provides instruction in the following topics: (a) wetland hydrology; (b) wetland vegetation; (c) major faunal populations associated with wetlands; (d) wetland plant and animal communities, ecosystem relationships, and dynamic processes; (e) hydric soils; (f) wetland classification systems, including the relationship of such wetland classifications to ecosystems classifications and parameters; (g) principles of wetlands ecology and dynamics; (h) current research in wetlands; (i) evaluation of wetland functions; (j) overview of wetland development, restoration, and constructed wetlands; and (k) open discussion and problem solving.

Prerequisites.
Nominees must be: Occupational Series: 0025, 0028, 0110, 0400, 0800, 1300; and Grade: GS-07 and above.

General Construction - QV

Control Number: **54** Length: 37 Hours

CEUs: 3.1 PDHs: 31 LUs: 31

Purpose.

This course provides the participant with the basic technical knowledge required to verify all elements of building construction, based on guide specifications, and to identify the quality assurance representative's role as it relates to construction quality management.

Description.

Through lectures, conferences, and case study sessions, the course covers the subjects of concrete and masonry, safety, exterior and interior electrical systems and components, heating, air-conditioning, plumbing, ventilation, interior and exterior finishes, structural steel and welding, mechanical insulation, sheet metal work, site utilities, soils and compaction, and roofing. An account of the purpose, meaning, and acceptance of contract quality control is included in the session on procedures for monitoring the construction quality management program. The course is directed toward proper and effective quality assurance verification of building construction. This course would be very helpful for field installation personnel who perform operation and maintenance repair on building systems and personnel who have real property inspection duties.

Prerequisites.

Nominees must be assigned (a) Occupational Series: 0801, 0802, 0808, 0809, 0810, 0830, and 0850; (b) Grade: GS-05 or above or equivalent. Students should have a current or projected assignment as a general quality assurance representative, construction representative, technician, or engineer, with quality assurance responsibilities. The fact that this course is oriented to building construction should be weighed when nominating a civil works candidate. Candidates must not have attended this or similar course within the past 5 years.

GEOSPATIAL Imagery and Remote Sensing

Control Number: **196** Length: 36 Hours

Purpose.

Instruction is designed to introduce the students to the concepts of applied remote sensing using satellite and airborne imagery. This course combines informative lectures with hands-on lab exercises that provide an understanding of remote sensing and image processing as they are used for USACE Civil Works applications. Topics include: remote sensing applications for navigation, flood damage detection, environmental missions, wetlands and waterways, regulation and permitting, real estate, recreation, survey and mapping, emergency response, and research and development.

Description.

This course provides a background of the principles of remote sensing; an overview of sensor types; processing of multispectral, hyperspectral, radar, LIDAR, and digital elevation data; obtaining image data via the USACE data acquisition protocol; spectral signatures and libraries, integrating imagery with GIS and GPS data; map projection and geo-rectification; and information extraction through image classification.

Prerequisites.

The course is intended for Civil Works personnel involved with survey and mapping, navigation, real estate, environmental, hydrology, regulation and permitting, and emergency response. Hands-on computer participation is required for this course. The course is intended for both professional and technical level classifications. It is open to selected occupational series: 0150M 0400, 0800, and 1300; and Grades: GS-07 through 12.

GIS Intermediate

Control Number: **167** Length: 24 Hours

Purpose.
This course provides students who already have basic GIS knowledge with more advanced GIS concepts and issues. The class uses a single data set to reinforce class instruction during a series of hands-on laboratory exercises.

Description.
This instruction provides knowledge of advanced GIS concepts. Specific issues addressed:
(a) Database Design. Best ways to create databases for solving specific problems and avoiding the need to later redesign so as to rectify deficiencies;
(b) Advanced Analytical Methods. Processing methods beyond basic boolean overlay and map algebra will be considered for environmental, water control, and land management applications;
(c) Error. Error types, calculation, and issues related to propagation of error during analysis.
(d) Presentation of Results. Preparation and presentation using key elements of effective GIS maps.

Prerequisites.
Students shall have previous instruction or job-related experience in the use of GIS.
Nominees should be assigned (a) Occupational Series: 0020-0029, 0100-0199, 0400-0499, 0800-0899, 1170, and 1300-1399; (b) Grade: GS-07 or above.

GIS Introduction

Control Number: **205** Length: 36 Hours
CEUs: 2.2 PDHs: 22

Purpose.
This course provides introductory instruction on the use of GIS software/hardware and various data sources to analyze Corps project operations and support decision making.

Description.
Instruction should introduce students to the concept of GIS as an integrator of geospatial data and as an analysis tool emphasizing emergency management, natural resources and environmental applications. Topics include:

(a) concept and operation of GIS, data entry, storage, display, and output;
(b) geospatial data structures and their advantages;
(c) compatibility issues;
(d) analysis, modeling, QA/QC;
(e) selection of a GIS;
(f) importation of imagery CAD files; and
(g) related USACE and Federal policies and standards.

Prerequisites.
Nominees should be assigned (a) as engineers, planners, biologists, foresters, or surveyors who use digital data to map or analyze projects; (b) Occupational Series: 0020-0029, 0100-0199, 0400-0499, 0800-0899, 1170, and 1300-1399; (c) Grade: GS-07 or above; (d) those whose job responsibilities include the analysis of spatial data and the use of digital data to map or manage Corps projects will find this course useful or (e) supervisors or others from any occupational series who are considering or are interested in the possible use of GIS in their business process.

GPS for GIS Applications

Control Number: **187** Length: 36 Hours
CEUs: 2.8 PDHs: 28

Purpose.
This course provides participants with a knowledge of the basic techniques for integrating field GPS spatial data into GIS databases. Functional elements supported by this course include: surveying, engineering, construction, navigation, master planning, and facility management.

Description.
This course covers basic GPS/GIS concepts using the Spatial Data Standards principles and applications; related cost factors; GIS database development; absolute and differential modes; survey applications and procedures; and GPS data collection, reduction, accuracy, and analysis using commercial data bases and GIS software.

Prerequisites.
The course is intended for military and civil functional elements involved with facility management, surveying, construction, navigation, mapping, real estate, FM, GIS, etc. Hands-on computer experience required for this course. The course is intended for both professional and technical level classifications. It is open to all grades/series with GPS/GIS responsibilities.

GPS Surveying and Advanced Processing

Control Number: **203** Length: 36 Hours
CEUs: 2.9 PDHs: 29

Purpose.
This course provides training for surveyors, technicians, engineers, and others who need to have the knowledge and understanding of the practical and technical aspects of surveying and data collection with GPS and DGPS techniques. The course is designed to provide students with the skill set and information on how to plan, collect, and process GPS measurements for high accuracy surveying with the use of EM 1110-1-1003, "NAVSTAR Global Positioning System Surveying."

Description.
This course addresses the planning, data acquisition, data processing and adjustments, and data analysis components of high accuracy surveying with GPS. Topics covered in this course include: GPS and DGPS Positioning; Coordinate Systems and Datums; Selecting appropriate GPS method(s) for a project; GPS field data collection; Use of NGS On-Line Positioning User Service (OPUS) Projects for data processing; GPS data processing and network adjustments; Assessing the quality of processed GPS data; Real-Time Kinematic GPS data collection and processing; and loading data into the USACE project control database (U-SMART). Students will perform hands-on high accuracy GPS data collection, processing, and network adjustment during this course.

Prerequisites.
Nominees should: (a) be selected occupational series 0800 (Engineers), 1300 (Surveyors and Technicians), geographers; (b) have hands-on computer experience.

High-Altitude Electromagnetic Pulse (HEMP) Protection for USACE Projects

Control Number: **15** Length: 32 Hours

Purpose.
This course is to increase the participant's understanding of the basic knowledge and skills necessary to assume project engineering responsibilities for HEMP projects within USACE. This course is applicable to Electrical Engineers, Mechanical Engineers, Cost Estimating Engineers, Program Managers, Program Management Specialists, Program Managers, Contracting Officers and Contracting Specialists.

Description.
This course covers the basic concepts concerning HEMP protection, testing, and project acquisition and execution activities that occur throughout the project's life cycle. Topics covered are 1) threat and sequence of events 2) topologies 3) points of entry, doors and shielding 4) testing 5) site investigation 6) challenges within the HEMP construction phase 7) terms, requirements and references 8) HEMP filters and waveguides 9) special protective measures 10) project management and acquisition 11) challenges of the HEMP design phase and 12) Challenges with HEMP project maintenance and surveillance.

Prerequisites.
None.

HVAC Control Systems Design: Design-Quality Verification

Control Number: **340** Length: 36 Hours

Purpose.
This course is intended for HVAC system designers, those responsible for developing scopes of work incorporating HVAC design for new and existing facilities, and those responsible for negotiating contracts and task orders for such work.

Description.
This course provides the HVAC control system designer with the knowledge necessary to develop a project design and specification for building-level direct digital controls capable of being interfaced with a base-wide utility monitoring and control system (UMCS). Subjects include: (1) Applied control theory (2) Control hardware, loops, systems, and drawings (3) Calculations, sizing, selections, and set-points (4) Introduction to Open systems including terminology, architectures and Open system goals, benefits and challenges (5) Introduction to LonWorks, BACnet, and Niagara Framework, including “crash courses” in the protocols and technology (6) Utility Monitoring and Control System (UMCS) Requirements and Specifications: UFGS 25 10 10, Utility Monitoring and Control System (UMCS) Front End and Integration UFGS 25 08 10, Utility Monitoring and Control System Testing (7) Building Control System requirements and UFGS-23 09 xx series of specifications including UFGS 23 09 00, Instrumentation and Control for HVAC, UFGS 23 09 23.01, LonWorks Direct Digital Control for HVAC and Other Building Control Systems, UFGS 23 09 23.02, BACnet Direct Digital Control for HVAC and Other Building Control Systems, UFGS 23 09 13, Instrumentation and Control Devices for HVAC, UFGS 23 09 93, Sequences of Operations for HVAC Controls (8) Points schedule drawing requirements (9) UMCS supervisory functions and operator interface requirements (graphical display, alarms, scheduling, trending) (10) Project implementation (11) Project quality verification and inspection (12) HVAC controls commissioning (13) Multi-vendor product support and availability (14) Base-wide UMCS/DDC planning

Prerequisites.
A degree in engineering, technology, physics, mathematics or equivalent experience.

HVAC Systems Commissioning

Control Number: **327** Length: 36 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course provides practical technical information to fulfill construction quality assurance duties for commissioning of mechanical systems. The course identifies procedures for commissioning of HVAC systems, including: qualifications, plan, and submittal reviews; inspection; and testing.

Description.
Through lecture, visual aids, conferences, and testing, this course presents HVAC commissioning as outlined in UFGS 01 91 00.15, UFGS 23 08 00, and ER 1110-345-723. A 2-day lab experience is included where students conduct and document proper performance testing of HVAC Systems.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0801, 0802, 0809, 0810, 0830, and 0850; (b) Grade: GS-05 through GS-12, or equivalent; (c) a current or projected position as an engineer, engineering technician, construction representative, or resident engineer with mechanical quality assurance (directly or supervised) responsibilities. Nominees should comply with one of the following:

- completed the Mechanical QV PROSPECT Course, #074 or have experience in mechanical quality assurance equivalent to the basics presented therein.
- designers with two or more years of experience in HVAC design, including controls.

HVAC Systems Design

Control Number: **391** Length: 36 Hours
CEUs: 3.3 PDHs: 33

Purpose.
The purpose of this course for HVAC design engineers is to teach or refresh them in the concepts of HVAC design for DoD and other government facilities. For others such as those in positions of contracting, area or resident engineers and project engineers the course teaches the criteria requirements and need to include provisions in scopes of work for meeting criteria requirements. For students who are QA's or on-site technicians the course provides an understanding of how systems interact and function together. Because design success depends upon those not engaged in design, it is important for all if DoD is to meet criteria requirements, including public law. An overarching function of the course is to pass on unique aspects of DOD design and experiences to highlight paths to successful design.

Description.
This course presents topics on (a) heating and cooling load calculations; (b) psychrometrics; (c) duct design; (d) hydronic system design; (e) equipment selection; (f) HVAC system sizing and layout; (g)HVAC system design and construction criteria and sources; (h) building insulation and U-value determination; (i) energy conservation criteria including ASHRAE 90.1 conformance; (j) noise and vibration considerations, and (k) indoor air quality. It also provides the basis for a standard methodology of design.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0800 through 0855; (b) Grade: no limitations; (c) current or projected assignment as an HVAC design engineer or technician with limited or no design experience. The course provides an overview of HVAC design topics for individuals responsible for design, construction, or operation of HVAC systems.

HVAC Testing and Balancing Quality Verification

Control Number: **68** Length: 36 Hours
CEUs: 3.3 PDHs: 30

Purpose.
The purpose of this course is to provide the student with a foundation in the principles, processes, and requirements for quality assurance of Testing, Adjusting, and Balancing of HVAC systems.

Description.
HEATING, VENTILATING AND AIR CONDITIONING TESTING, ADJUSTING, AND BALANCING QUALITY ASSURANCE (HVAC TA&B-QA) The course teaches the fundamental skills and knowledge to evaluate the TAB of HVAC systems with a focus on the process outlined in Unified Facilities Guide Specification 23 05 93 "Testing, Adjusting, and Balancing for HVAC". The course begins with 2 days of primarily lecture based instruction and classroom exercises followed by 2 days of hands-on lab exercises utilizing TAB equipment and related HVAC system components and controls.

Prerequisites.
Students must be assigned (a) Occupational Series: 0801, 0802, 0809, 0810, 0830, and 0850; (b) Grade: GS-07, WG-09, or above, or equivalent. Students should bring pocket calculator and comply with one of the following:

- Completed the Mechanical QV PROSPECT Course, #074.
- Have experience in HVAC quality assurance and HVAC fundamentals.
- Two or more years of design experience in HVAC, including controls.

HW Manifest/DOT Certification

Control Number: **223** Length: 36 Hours
CEUs: 3.3 PDHs: 33

Purpose.
This 36-hour course provides initial training regarding regulatory requirements of the Hazardous Materials Transportation Act (HMTA) and the Resource Conservation and Recovery Act (RCRA) as it applies to the generation, transportation, and disposal of HAZMAT focusing upon hazardous waste. It enables employers to certify that as required by 49 CFR 172 Subpart H, that their employees have been trained and tested on general awareness and function specific elements described below. In addition, this is an ISEERB approved and DoD approved course as per DoD 4500.9-ER. It has been reviewed by subject matter experts from DOD components and found to be suitable for more than one agency. (Note: Certain RCRA and safety related training elements required by 49 CFR 172 Subpart H and 40 CFR 265.16 are typically site-specific and must be performed on the job.)

Description.
Training topics cover the identification and classification of hazardous wastes for purposes of preparing a hazardous waste manifest and fulfilling the DOT requirements for shipping hazardous wastes. Specifically, training topics include RCRA waste classification, land disposal restrictions and notifications, generator requirements, manifesting requirements, identification of a DOT reportable quantity, use of the Hazardous Materials Table, DOT requirements for determining a shipping name, properly packaging, labeling, marking and placarding, and DOT emergency response requirements, and general security awareness training. In addition, the course addresses special EPA and DOT requirements for shipping asbestos and PCBs.

Prerequisites.
There is no prerequisite for this course, but this course can satisfy the prerequisite for PROSPECT course #429. This course is primarily targeted at persons in the following series: 0800, 0820, 0809, 0810, 0819, 0028, 0029, 0025, 0026, 0401, 1350, 1301, 0893, 0830, 1306, and 1320 (All series involved with environmental programs, including all engineers, chemist, industrial hygienists, health physicists, biologists, geologists, hydrogeologists, program managers, planners, etc.) as well as all Installation environmental staff, Civil Works Environmental Compliance Coordinators and Civil works personnel required to sign HAZMAT shipping documents and/or hazardous waste manifests. The training is designed for persons with any of the following job responsibilities: identification of proper shipping names for hazardous wastes in accordance with DOT regulations; selection of appropriate packaging, marking,

labels and placards in accordance with DOT regulations; RCRA waste identification and classification; completion or review of hazardous waste manifests and/or land disposal restriction notifications; preparation of shipping documents for used oil, asbestos and PCBs; shipping of analytical samples; loading or unloading of hazardous wastes; and transportation of hazardous materials in general.

HW MANIFEST/DOT RECERTIFICATION

Control Number: **429** Length: 16 Hours

Purpose.
This 16-hour course provides recurrent training regarding regulatory requirements of the Hazardous Materials Transportation Act (HMTA) and the Resource Conservation and Recovery Act (RCRA) as it applies to the generation, transportation, and disposal of hazmat, focusing upon hazardous waste. It enables employers to certify, as required by 49 CFR 172 Subpart H, that their employees have been trained and tested in general awareness and function-specific elements described below. In addition, this is an ISEERB approved and DoD approved course as per DoD 4500.9-R. It has been reviewed by subject matter experts from DoD components and found to be suitable for more than one agency. (Note: Certain RCRA and safety related training elements required by 49 CFR 172 Subpart H and 40 CFR 265.16 are typically site-specific and must be performed on the job.)

Description.
Training topics cover the identification and classification of hazardous wastes for purposes of preparing a hazardous waste manifest and fulfilling the DOT requirements for shipping hazardous wastes. Specifically, training topics include RCRA waste classification; land disposal restrictions and notification; manifesting requirements; identification of a DOT Reportable Quantity; use of the Hazardous Materials Table; and DOT requirements for determining a shipping name, proper packaging, labeling, marking, placarding, DOT emergency response requirements, and general security awareness. In addition, the course addresses special EPA and DOT requirements for shipping asbestos and PCBs. This course does not address Class 7, Radioactive Waste. Students needing recertification to ship radioactive waste are referred to PROSPECT course #430.

Prerequisites.
This is a refresher course. Students must have previously completed either PROSPECT course #223 or other DoD approved initial training as specified under 49 CFR 172, Subpart H and The Defense Transportation Regulation DTR] 4500.0-R-II, Chapter 204, paragraph D, (1)(h) and D(2). This course is primarily targeted at persons in the following series: 0800, 0820, 0809, 0810, 0819, 0028, 0029, 0025, 0026, 0401, 1350, 1301, 0893, 0830, 1306, and 1320. (All series involved with environmental programs including engineers, chemists, industrial hygienists, health physicists, biologists, geologists, hydrogeologists, program managers, planners, etc.) as well as all Installation environmental staff, Civil Works Environmental Compliance

Coordinators, and Civil Works personnel required to sign hazmat shipping documents and/or hazardous waste manifests. The Prerequisites. 42 2024 PROSPECT Course Catalog training is designed for persons with any of the following job responsibilities: identification of proper shipping names for hazardous waste in accordance with DOT regulations; selection of appropriate packaging, markings, labels and placards in accordance with DOT regulations; RCRA waste identification and classification; completion or review of hazardous waste manifests and/or land disposal restriction notifications; preparation of shipping documents for used oil, asbestos and PCBs; shipping of analytical samples; or hazardous wastes; and transportation of hazardous materials in general.

Hydraulic Steel Structures - Overview

Control Number: **343** Length: 36 Hours

CEUs: 3.2 PDHs: 32

Purpose.

This course is designed to provide training on the inspection, evaluation, and repair of hydraulic steel structures, that includes the identification of critical members and connections. Nondestructive testing techniques that may be used during periodic inspections or detailed structural inspections are discussed. Guidance is provided on material testing to determine the chemistry, strength, ductility, hardness, and toughness of the base and weld metal. Analyses methods that can be used to determine structure safety, safe inspection intervals, and expected remaining life of the structure with given operational demands are presented.

Description.

This course is an overview of the USACE requirements for design, inspection, and evaluation of hydraulic steel structures(HSS). It is designed to provide guidance in the best practices for maintenance, repair, or replacement of HSS. Nondestructive testing techniques that may be used during periodic inspections or detailed structural inspections are discussed. Guidance is provided on material testing to determine the chemistry, strength, ductility, hardness, and toughness of the base and weld metal. Analyses methods that can be used to determine structure safety, safe inspection intervals, and expected remaining life of the structure with given operational demands are presented.

Prerequisites.

Nominees must be assigned (a) Occupational Series: Selected 0800; (b) Grade: GS-07 or above and WG as appropriate; and (c) This course is designed for all personnel involved in the design, fabrication, inspection, and repair of USACE hydraulic steel structures.

Hydraulics and Hydrology for Dam Safety Studies

Control Number: **320** Length: 36 Hours

Purpose.
The objective of the course is for participants to perform hydrologic and hydraulic modeling in support of Dam Safety studies. Topics presented will include: Development of Probable Maximum Precipitation (PMP); Using GIS to Develop a Hydrologic Model; Hydrologic Modeling for PMP/PMF Events; Developing Dam Breach Parameters; Dam Breaching Analysis using HEC-HMS and HEC-RAS; Unsteady Flow Modeling with HEC-RAS; using HEC-GeoRAS and RAS Mapper for Inundation Mapping; and Consequence Modeling. Each participant will have the opportunity to prepare model input and analyze model output during course workshops.

Description.
Through a series of lectures and hands-on workshops, the students will learn about development of extreme storm events and hydrologic and hydraulic analysis methods using HEC-HMS and HEC-RAS software to simulate inflow design floods to assess spillway adequacy, and to evaluate dam-break consequences. Other topics will include: severe storm magnitude and sequence analysis; hydrologic simulation of inflow to dam and downstream tributaries; spillway sizing and operation; hydraulic calculations of flow through dam outlets; estimating dam breach parameters; dam breaching analysis; hydraulic routing of dam break flood waves; how to solve model stability problems when performing a dam break analysis; inundation mapping; and consequence modeling.

Prerequisites.
Nominees must be assigned (a) Occupational series: Selected 0800 and 1300 (b) Grade: GS-07 or above (c) Prior courses: Basic HEC-HMS (#178) and HEC-RAS (#114) or equivalent knowledge; and (d) Familiarity working in a Windows-based computer system environment. Basic HEC-HMS and HEC-RAS input will not be covered. Prior experience with unsteady flow routing is recommended.

HYDROGRAPHIC SURVEY TECHNIQUES

Control Number: **56** Length: 40 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course provides participants with the knowledge and technology required in performing hydrographic surveys in support of USACE navigation, dredging, surveying, coastal engineering, inland waterways and related marine construction activities. The course is designed to provide engineers, engineer technicians, field survey technicians, survey vessel operators, and A-E contract administration personnel with a technical familiarization of the criteria, standards, and specifications in EM 1110-2-1003, "Hydrographic Surveying", and applying this manual in performing in-house and contracted hydrographic surveys.

Description.
This course provides instruction on the process and technology used to conduct hydrographic surveys. The instructional program emphasizes the processes required to most effectively perform hydrographic surveys. The major subject areas covered include: hydrography, survey datums, depth and position determination, horizontal and vertical error estimation and analysis, tidal theory, computer hardware and software used for automated hydrographic surveys, fluff measurement, volume computations, multi-beam swath and multitransducer sweep systems, GPS positioning, LIDAR, and project planning. Some horizontal and vertical measurement concepts and techniques will be demonstrated in the field.

Prerequisites.
Nominees should be assigned (a) Occupational Series: 0800 (engineers, engineer technicians), 0817 and 1300 (field survey technicians), and 0095 and 1100 (A-E contract administration personnel); (b) Grade: GS-05 or above. Waivers will be considered.

HYDROLOGIC ANALYSIS FOR ECOSYSTEM RESTORATION

Control Number: **161** Length: 36 Hours

Purpose.
The primary objectives of the course are to provide participants with an understanding of the role of hydrologic engineering in ecosystem restoration studies and to provide experience in the application of several software tools that can be used to perform the hydrologic analyses common in restoration planning, evaluation and design.

Description.
Hydrologic and hydraulic processes generally control the creation, restoration, maintenance, size, and function of rivers and aquatic and terrestrial floodplain ecosystems. They not only affect the quantity and quality of water available but also influence soil conditions, nutrient availability, salinity, and the flora and fauna that develop along rivers and in wetlands. In riverine ecosystems the quantity of water available, its seasonal timing and duration, river alignment and exposure are some of the principal considerations influencing habitat and wildlife. This course will focus on hydrologic and hydraulic processes and in analyses that apply to ecosystem restoration. The course agenda includes a series of increasingly difficult topics and workshops, beginning with principles of hydrology, ecology, and statistics and advancing to time series analysis, hydrologic alteration, ecosystem flow definition, ecosystem functions modeling, river hydraulics, and sedimentation. Over a third of the week will be dedicated to software demonstrations and workshops where course participants gain experience using a number of different software tools.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 800 and 400 series, 028, 819, 184, 101, 401, and 1301; (b) Grade GS-09 and above. Nominees should be water control managers, hydrologists, civil engineers, environmental specialists, biologists, ecologists, economists, sociologists, or study managers.

Hydrologic Modeling with HEC-HMS

Control Number: **178** Length: 36 Hours

Purpose.
This course provides basic instruction on the Corps' Hydrologic Modeling System (HEC-HMS). Workshops provide hands-on reinforcement of scientific and engineering principles presented in lectures. Students will be prepared to work on typical flood risk management studies after completing the course. These same skills are also used as a starting point for studies in ecosystem restoration, forecasting, and dam and levee safety.

Description.
The course covers basic hydrologic engineering techniques for precipitation-runoff analysis to support flood risk management studies. Topics include: basin average precipitation estimation, gridded precipitation, infiltration determination, unit hydrographs, streamflow routing, and methods for modeling runoff throughout a watershed composed of multiple subbasins and river reaches. Parameter estimation and model calibration are also included. Workshops provide hands-on reinforcement for these areas while following steps from start to finish for creating an HEC-HMS application. Scientific and engineering principles of hydrologic studies are presented and HEC-HMS is implemented as a tool.

Prerequisites.
Nominees should have completed a college-level hydrology course. Nominees must be assigned (a) Occupational Series: 0400, 0800, and 1300; (b) Grade: GS-07 or above.

Instrumentation & Performance Monitoring of Civil Works Structures

Control Number: **26** Length: 24 Hours

CEUs: 2.1 PDHs: 20 LUs: 20

Purpose.

This course provides instrumentation and performance-monitoring guidance for Civil Works structures.

Description.

The course will cover all the aspects of the instrumentation and monitoring of dams and levees through lectures, case histories, group discussions, workshops, field visit, and practical exercises.
The course will include: program development and considerations, visual monitoring discussions, common instrumentation and their applications, installation considerations, data collection frequencies, data management, threshold establishment, automated data acquisition systems and software, data processing and evaluation, and reporting requirements. Hands-on field exercises will include example instruments and manual readings of instruments in the field as well as data processing and plotting. Hands-on group activities will include “developing instrumentation monitoring program considerations” exercises, as well as data interpretation and evaluation exercises.

Prerequisites.

Nominee must be assigned to (a) Occupational Series: Selected 0800 and 1350. (b) GS-07 or above. Nominees must have current or projected responsibilities in instrumentation program development, data collection, processing and plotting, or data evaluation. Nominees are recommended to already have taken the general “Dam Safety” or “Levee Safety” PROSPECT course or have 3 years of work experience with dams or levees. Attendees should bring proper attire for field visit, e.g., rain gear, comfortable shoes (no open toed shoes).

Interpretive Services

Control Number: **72** Length: 32 Hours

CEUs: 2.7 PDHs: 27

Purpose.

This course is intended for those employees in natural resources management career fields and others who have interpretation, outreach, or related job responsibilities. The course is designed to develop understanding and skills that will help park rangers, visitor center managers, and other resource specialists to implement the Corps Interpretive Services and Outreach Program at their projects.

Description.

After completing the course, the student should be able to develop and maintain an effective interpretive services and outreach program. Topics covered include (a) definitions of interpretation; (b) USACE goals of interpretation; (c) how to develop interpretive programs, panels, exhibits, and self-guided trails; d) resources and demonstrations of water safety, environmental education, and STEM programs; and e) how to create written outreach materials such as news releases and social media. A hands-on practical application project is included in the course.

Prerequisites.

Nominees must be assigned (a) Occupational Series: 023, 025, 026, 028 and 1001 as well as all the 400 series; (b) Grade: GS-05 or above; (c) employees in job series other than those listed above who have interpretation or outreach as part of their job responsibilities.

Introduction to Economic Risk Assessment for Flood Risk Management Studies

Control Number: **209** Length: 36 Hours
CEUs: 2.6 PDHs: 26

Purpose.
This course presents introductory economic risk concepts and assessment methods required by current Corps guidance for the planning of flood risk management projects, and is intended for persons who are presently or will soon be actively involved in the formulation and evaluation of flood risk management alternatives for planning studies. The course emphasizes policy issues, statistical analysis concepts, and the implementation of risk assessment with uncertainty methods for sizing and evaluating flood risk management study alternatives. The course objective is to enable participants to readily adapt the methods on specific studies to effectively assess risk with uncertainty and to evaluate the economic justification of alternative plans after successfully completion of the course.

Description.
This course presents an introduction to economic risk assessment methods and the underlying theory, many of which are required by Corps guidance. The objective is to enable participants to readily adapt these methods and concepts to their own studies and projects after successfully completing the course. Policy issues, concepts in statistical analysis, and risk assessment with uncertainty methods used in the evaluation of flood risk management projects are emphasized in the course. Workshops provide participants with the opportunity to apply the course's concepts using the Hydrologic Engineering Center Flood Damage Reduction Analysis (HEC-FDA) software program.

Prerequisites.
Nominees for the course should have a minimum of two years experience in the hydrologic, hydraulic, economic, or plan formulation aspects of flood risk management projects. Managerial and supervisory personnel are encouraged to attend. Nominees may be assigned (a) Occupational Series: Selected 0000-0100, 0800, and 1300; (b) Grade: GS-09 or above.

Levee Inspection

Control Number: **36** Length: 24 Hours
CEUs: 1.9 PDHs: 19

Purpose.
Train U.S. Army Corps of Engineers (USACE) staff to include managers, engineers, geologists, and technicians on aspects of the USACE levee inspection procedures. The course is also available to non-USACE participants interested or involved with the USACE levee safety inspections.
The course intent is to teach new levee inspectors levee inspections using USACE criteria are conducted. The course will focus on teaching inspectors how to use the inspection checklist, software, and tools required to complete an inspection. The course will also inform students how levee inspections fit within the Levee Safety Program's risk informed decision making process and who should participate during the inspection process. Levee inspection steps covered throughout this course include planning and preparing for inspections, executing safe inspections, completing an inspection report using the proper software, documenting inspection data in the National Levee Database, and effectively communicating results with partners, sponsors, and stakeholders.

Description.
Lectures, case histories, field visits and structured classroom exercises will be employed to familiarize participants with all aspects of levee inspections. The course is structured around the entire life-cycle of the inspection process and throughout the week, inspection procedures are performed by students, in a hands-on environment, on an actual levee in the area. Students will learn the background of inspection methodology, proper usage of the inspection tools and software, and will complete a sample inspection report. Dress is business casual and students should plan to dress accordingly during the field inspection.

Prerequisites.
Occupational series: Selected 0100, 0400, 0800, 0900, 1000, 1300, and 1500
Grade: GS and WG, as appropriate, GS05 or above
This course is intended for all personnel involved in levee safety inspections. No prior knowledge of this topic is required to attend.

Levee Safety Fundamentals

Control Number: **30** Length: 24 Hours
CEUs: 2.0 PDHs: 20

Purpose.
This course trains USACE staff to include managers, engineers, geologists, technicians, economists, planners, and public affairs on the main aspects of the USACE Levee Safety Program. The course is also open to non-USACE participants interested or involved with the USACE Levee Safety Program.
The course intent is to present an overview of the USACE Levee Safety Program to include history, levee system facts and functions, and use of risk-informed decision making for managing levees. The course will focus on Levee Safety Program elements that achieve the USACE "life safety being paramount" mission. Levee Safety Program elements covered throughout the course include inspections, leveed area inundation scenarios, risk assessments and portfolio management, roles and responsibilities, risk reduction actions, stakeholders and partners, emergency planning and response, risk management and risk communication.

Description.
Lectures, case histories, field visits and structured classroom exercises will be employed to familiarize participants with all aspects of the USACE Levee Safety Program. The course is structured around a basic conceptual representation of levee safety as comprised of the levee system and associated leveed area. A levee system is inclusive of earthen embankments or floodwalls, and all appurtenant structures which are interconnected and necessary to ensure exclusion of floodwater from a defined area, referred to as the leveed area. The course will cover concepts that are considered during risk assessments for levee systems, such as: hazard-frequency and magnitude of flood loading; performance – embankment/walls and other structures behavior under exposure and loading; characteristics of leveed area including persons and property; vulnerability – potential for life loss, economic and environmental impacts; and consequences during a levee breach or overtopping. Presentations, video modules, case histories, and class exercises, including a field inspection, are used to effectively present the approach to the successful monitoring and evaluation of USACE levees.

Prerequisites.
Nominee must be assigned:
(a) Occupational Series: Selected 0100, 0400, 0800, 0900, 1000, 1300, 1500
(b) Grade: GS and WG, as appropriate, GS05 or above
This course is intended for all personnel, including non-Federal employees, interested in or involved in identifying levee safety risk, and developing risk reduction actions and their associated implementation. No prior knowledge of this topic is required to attend this class.

LiDAR Fundamentals

Control Number: **296** Length: 36 Hours

Purpose.
This course provides engineers, cartographers, surveyors, planners, project managers and engineering technicians with an overview of the latest techniques used in acquiring and processing high-resolution terrain data derived from LiDAR and aerial imagery. These data are used for planning, designing and construction of civil works and military and environmental projects. Emphasis is placed on technology, acquisition, management and exploitation of LiDAR and aerial imagery data sets. Basic photogrammetric and LiDAR principles are reviewed and discussed. Also discussed are A-E contracting for LiDAR and aerial photography services--this includes related cost estimating, contract administration, and quality control/quality assurance. The course provides several demonstrations as well as significant hands-on experience with equipment and in the computer laboratory.

Description.
This course will discuss the principles of LiDAR and aerial imagery, explore the current state of technology, and discuss various applications where LiDAR and aerial imagery is used, with real-world project and data examples. Data acquisition and processing will be discussed, including planning and conduct their own surveys and the necessary post-processing to create the required data products to obtain a better understanding of LiDAR and aerial imagery data acquisition and manipulation. Furthermore, detailed information will be explored related to contracting requirements and data management and dissemination.

Prerequisites.
Nominees must be assigned Occupational Series: 0800, 0150, 1100, 1300. This course involves hands-on application of PC-based software using standard software computational/translation packages. Therefore, nominees must have a general knowledge of PC operation.

LUBRICATION OF MECHANICAL EQUIPMENT

Control Number: **412** Length: 32 Hours

Purpose.
This course is designed primarily for USACE personnel who have hydropower, navigation lock & dam, and spillway maintenance responsibilities; such as supervisors, mechanic crew foremen, engineers, powerhouse mechanics, and technicians. It provides a comprehensive understanding of lubrication issues at hydropower facilities, navigation locks, and spillways. It may also be of benefit to design engineers who need a broader knowledge of lubricant characteristics and performance.

Description.
Through lectures, visual aids, and case study sessions, this course covers the following subjects: (a) friction, wear and lubrication fundamentals; (b) lubricant formulation; (c) lubrication additives and their function; (d) essential characteristics of lubricants; (e) lubricant sampling, testing, and interpretation of test data; (f) greaseless bearings and their application; (g) compatibility of lubricating oils; (h) oil purification; (i) oil filtration and contamination control; (j) lubricating greases - classification, formulation and application; (k) compatibility of greases; (l) hydraulic fluids; (m) turbine oils; (n) gear boxes and open gear lubrication; (o) environmentally acceptable lubricants; (p) wire rope and chain lubrication; (q) incorporation of EOP's and sustainability into mechanical lubrication and (r) open forum discussion on best practices and lessons learned; (s) turbine oil selection and analysis. The course includes a tour of a USACE powerhouse and a navigation lock and dam.

Prerequisites.
Nominees must be assigned in GS or WG Occupational Series as engineers, supervisors, mechanic crew foremen, mechanics, and technicians at USACE facilities with responsibility for operations and maintenance. Exceptions may include design engineers, and personnel involved with design, planning and management in hydropower and navigation lock and dam related organizations.

Maintenance and Rehabilitation of Pavements

Control Number: **50** Length: 36 Hours
CEUs: 2.9 PDHs: 29

Purpose.
This course teaches methods and techniques for maintenance and rehabilitation of flexible, rigid, and unsurfaced pavements.

Description.
This course focuses on practical and effective maintenance and repair methods and techniques. The course is composed of lectures, videos, handout materials, and field demonstrations. Maintenance and rehabilitation topics of both flexible and rigid pavements are covered including repair techniques, material properties and mix design, surface maintenance options, joint and crack sealants, recycling, production, placement, compaction, and case studies. Additionally, a background in lab tests and field identification of soils and bases materials, maintenance and repair of drainage structures, dust control, and gravel roads will be provided.

Prerequisites.
Nominees must be assigned to an activity with responsibility for maintenance, repair, and improvements of installation facilities (e.g., Army facilities engineer, Air Force base civil engineer) or Corps of Engineers field operations and maintenance activities. This course is designed for maintenance personnel and interested technical design staff.

Mechanical Design for Locks and Dams

Control Number: **329** Length: 32 Hours

Purpose.
Purpose: This course equips students with the mechanical design guidance for locks and dams and provides criteria for various applications in Civil Works projects. It specifically provides design criteria to utilize for lock machinery and dam machinery.

Description.
Through lecture and exercises, students will learn about machinery design for gated spillways, intake gates, and gated outlets. Detailed machinery requirements and sizing of machinery for locks and dams as well as various FRM projects will be presented. Students will recognize USACE navigation and flood control mission, history and background. The requirements for inspection of machinery will be covered in detail. Coordination requirements for Electrical Design and Structural Design are discussed. Material requirements for lock and dam applications are presented. Students will access and navigate design revisions per ER 217 and ER 415-1-1.

Prerequisites.
Nominees should be assigned Occupational Series 0830 (Mechanical Engineers) and performing design functions for lock and dam Civil Works applications.

Mechanical Quality-Verification

Control Number: **74** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course provides the participant with information, procedures, and problem area solutions that must be known to effectively perform mechanical quality assurance duties. The course specifically addresses preparatory, initial, and follow-up inspection techniques concerning the equipment, material, and testing requirements for mechanical systems common to most building construction.

Description.
Through lecture, visual aids, conferences, and case study sessions, this course covers such subjects as (a) plumbing, (b) heating, (c) refrigeration, (d) air-conditioning, (e) fire protection, (f) HVAC controls, (g) outside utilities, (h) insulation, and (i) underground storage tanks. It emphasizes the government QA representative's role in construction quality management.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0801, 0802, 0809, 0810, 0830, and 0850; (b) Grade: GS-05 through GS-12, or equivalent. Nominees should have a current or projected assignment as an engineer, engineering technician, or construction representative, GS-12 and below, with mechanical quality assurance representative responsibilities. Nominees must not have attended this course or a similar course within the past 5 years.

Medical Construction Program Execution

Control Number: **227** Length: 36 Hours
CEUs: 3.1 PDHs: 31 PDUs: 31

Purpose.
This course is designed to teach the standard practices for the design, construction, operations, and maintenance of healthcare facilities. It provides project managers, resident engineers, design managers, construction managers, and QA personnel with procedures, tools, techniques, and healthcare knowledge to effectively deliver healthcare construction projects.

Description.
At the end of the course, the learner should be able to: 1. Understand the criteria and practices that govern the construction of healthcare facilities from design through construction and occupancy. 2. Understand healthcare industry fundamentals, planning, the design and construction process, patient safety, and the medical funding sources for military and VA healthcare projects. These goals will be obtained through the use of presentations, case studies, and group exercises to encourage meaningful discussions and provide a hands-on experience.

This course provides Continuing Education Units under IACET, Professional Development Hours under the National Society of Professional Engineers, Professional Development Units under Project Management Institute, and learning units under the American Institute of Architects.

Prerequisites.
Nominees must be employees who provide Quality Assurance/Construction Quality Management (QA/CQM) of medical facilities; project managers, program managers, construction managers, and area and resident engineers; design engineers who design or review medical construction plans and specifications.

MICRO-COMPUTER AIDED COST ESTIMATING SYSTEM II ADVANCED

Control Number: **312** Length: 32 Hours
CEUs: 2.8 PDHs: 28

Purpose.
This course provides cost engineering professionals with advanced instructions on accessing and utilizing the components of the MII software program not provided in the MII Basic course. The course presents detailed information on: (a) Military Programs, Civil Works, Environmental Remediation and Removal Projects and Programs, and modeling; (b) Crew Productivity Analysis for Civil Works; (c) Military Program, Civil Works and Environmental Work Breakdown Structures; (d) Management of MII Libraries, assemblies and tables, and (e) Other Advanced Cost Engineering Tools.

Description.
The course provides instruction on the use of modeling and quantity linking for the development of budget estimates, as well as detailed cost estimates. This modeling approach and other estimating techniques are used to develop ENG Form 3086 estimates in the proper electronic format, as well as Independent Government Estimates for contract award and modification. Parameter worksheets, quantity linking, and assemblies are also applied to crew productivity analysis for the development of Civil Works (CW) estimates. The course explores estimate structure development and reporting to accommodate the Civil Works Code of Accounts and the Military Programs and Environmental Work Breakdown Structures (WBS). Students will work with database functions to create site-specific unit prices, modify equipment costs for project specific circumstance, and adjust crews for overtime and shift differential.

Prerequisites.
(1) Students must be assigned (a) Occupational Series: Selected 0800, 0802, 0807, 0808, 0810, 0830, 0850, 1301, 1350; (b) Grade: GS-05 and above; (2) This course is open only to DoD personnel. Other participants must obtain CECW-CE approval and may be permitted to attend only on a last priority basis; (3) Students should have a decent working knowledge of (a) MII and should have taken the MII Basic and Cost Estimating Basics PROSPECT courses prior to this training, (b) Excel, particularly the use of ranges and if/then statements, (c) cost engineering, its rules and regulations, and (d) computer operations using the current Microsoft Windows operating environment.

Micro-Computer Aided Cost Estimating System II BASIC

Control Number: **305** Length: 32 Hours
CEUs: 3.1 PDHs: 31

Purpose.
This course provides cost engineering professionals with instruction in the preparation and execution of computerized cost estimates using the latest MII cost estimating software program. The course also supplements computerized estimating with ready-reference material intended to improve the participant's knowledge of Corps of Engineers policies and procedures for preparing government estimates for Military, Civil Works and Environmental Remediation and Removal Project and Program construction projects.

Description.
Through lectures, demonstrations, and hands-on computer usage, this course covers the basic computerized aspects of estimating using the latest version of MCACES (MII), the latest CostBook (UPB) and other supporting libraries (i.e., equipment, assemblies, labor, etc.) The student is required to complete quantity takeoffs and prepare detailed cost estimates, which may require work to be done after regular class hours. A pretest and posttest will be given.

Prerequisites.
(1) Students must be assigned (a) Occupational Series: Selected 0800, 0802, 0807, 0808, 0810, 0830, 0850, 1301, and 1350; (b) Grade: GS-05 and above; (2) The course is open only to DoD personnel. Other participants must obtain CECW-CE approval and may be permitted to attend only on a last priority basis; (3) Students should have at least a basic working knowledge of (a) cost estimating (it is highly encouraged for students to have taken Cost Estimating Basics PROSPECT course prior to this training) and (b) computer operations using the current Microsoft Windows operating environment; (4) Previous exposure to MCACES (MII) software programs is helpful; (5) Students should bring a calculator with them.

Mitigation Planning and Habitat Modeling for Civil Works

Control Number: **426** Length: 32 Hours
CEUs: 2.6 PDHs: 26

Purpose.
Through this course, students will determine how to assess mitigation needs for non-negligible effects on significant ecological resources for USACE Civil Works projects. After completing this course, students will be able to identify and apply appropriate modeling techniques to quantify habitat quality. This course will provide students with the ability to develop mitigation plans to meet USACE statutory and policy requirements for USACE Civil Works projects. The course includes both classroom and field exercises in aquatic and riparian environments to quantify habitat quality.

Description.
Mitigation Planning and Habitat Modeling for Civil Works will provide students with statutory, policy, and technical knowledge to develop compensatory mitigation plans for Civil Works projects. The course includes components in both the field and classroom setting to gain expertise in the following areas: (1) Legal and policy requirements for mitigation; (2) Assessing the need for mitigation; (3) Methodologies to quantify habitat quality, including USFWS Habitat Evaluation Procedures (HEP), USACE Ecosystem Functions Model (HEC-EFM), and rapid assessment techniques; (4) Assessing and recommending compensatory mitigation strategies; (5) Developing written compensatory mitigation plans in accordance with statutory and policy requirements; (6) Creating monitoring and adaptive management plans; and (7) Annual reporting requirements.

Prerequisites.
This course is targeted towards nominees who work in Planning including the environmental, economic, and plan formulation disciplines. In addition, this course is appropriate for Engineering professionals, especially those who are assigned to Civil Works studies. Occupational Series: Open to all. Due to the physical requirements of the field work integral to the course, potential students should be able to safely wade in flowing streams and rivers and negotiate rocks and large woody debris as the class traverses a range of waterbodies in field exercises.

National Electrical Code

Control Number: **78** Length: 36 Hours

CEUs: 3.0 PDHs: 30

Purpose.

PROSPECT course 078 was originally developed more than 30 years ago to meet the need within USACE to provide training for electrical professionals (includes engineers and technicians) to properly apply the requirements of the National Electrical Code in the design, construction, and maintenance of all USACE projects involving the use of electricity. The fields of electrical design, construction, and maintenance are very broad. Course 078 was developed to specifically address the electrical design and construction issues encountered on the wide variety of USACE projects, which include Military facilities, Civil Work structures and HTRW projects.

Description.

This course covers the application and interpretation of code requirements for the design, construction, and maintenance of interior electrical systems through directed informal discussion sessions, case studies and homework. Topics include, but are not limited to, interior distribution, grounding and bonding, motor and transformer circuits, calculations, personnel and equipment protection, classified (hazardous) areas, special conditions, communication circuits, and use of tables.

Prerequisites.

Nominees should be assigned (a) Occupational Series: 0801, 0802, 0809, 0810, 0830, 0850, or 0855; (b) Grade: GS-09 or equivalent wage grade and above. Nominees should be electrical engineers of any grade level or engineering technicians or construction representatives GS-09 or above. Nominees should be familiar with the principles of interior electrical installations or currently be assigned responsibilities for design, construction, or maintenance of interior electrical installations at Corps or other government facilities. Nominees are required to bring a calculator to the course in order to perform example calculations.

NEGOTIATING CONSTRUCTION CONTRACT MODIFICATIONS

Control Number: **368** Length: 36 Hours

CEUs: 3.2 PDHs: 32 LUs: 32

Purpose.

This course provides instruction that will improve the participant's effectiveness in negotiating construction contract modifications. The course provides a thorough review of the requirements and processes to effectively analyze and negotiate contractor proposals. This course provides practical exercises that assist the participant in applying sound judgment to arrive at an equitable adjustment. The course is recommended for individuals who are involved in processing and negotiating construction contract modifications on firm, fixed-price contracts.

Description.

The course entails lectures, videos, discussions, case studies, and daily vignette/exercise sessions, which present an in-depth overview of requirements and processes uses to become effective negotiators. Upon completion of this course, the student will be able to identify fundamentals of negotiating construction contract modifications; apply principles of acquisition and construction contract modification; and evaluate modification criteria to determine costs, price and profit analysis.

Prerequisites.

Nominees should be assigned to Occupational Series 0340, 0800, 0810, 1102, and 0905; GS-05 or above or equivalent NSPS, Military: 0-3 and above, Civilian: GS-07 or above. Nominees should possess 1-3 years of experience or target assignment to jobs in construction, contracting, or contract administration and should have responsibility for processing, negotiating, or reviewing construction contract modifications. Nominees need to possess a general knowledge of the post-award construction contracting process. Previous completion of the Construction Contract Administration course (No. 366) is recommended.

O&M Contracts ADVANCED

Control Number: **318** Length: 28 Hours
CEUs: 2.3 PDHs: 23

Purpose.
This course provides Operations/Civil Works project personnel with additional skills for developing and administering operations and maintenance service contracts at U.S. Army Corps of Engineers civil works projects. The focus will include contracting for cleaning, mowing, facility maintenance and minor construction services.

Description.
Through lectures, field exercises, and directed discussion sessions, this course covers contract types, administrative considerations, legal implications, and handling adverse circumstances of O&M service contracts used on U.S. Army Corps of Engineers civil works water resources projects. This course provides project contract administration personnel with an advanced understanding in project operations where significant reliance on O&M contracting is required, and focuses on demonstrating different applications for the various contract types to address O&M requirements.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0023, 0025, 0300, 0400, 0800 and 1100; (b) Grade: GS-07 or above or equivalent WG grade and series. Students should be those assigned project office contracting responsibilities, or district office personnel involved in contract administration supervision. Students must have completed the Administration of Operation and Maintenance Contracts basic course (No. 119). A goal of the course is to expose students to contracting solutions they may not have encountered before, so students should attend sessions outside their home Division in order to receive the full benefit of the class field trip. It is strongly recommended that students DO NOT request a class location in their home district. Those that do are subject to re-assignment.

O&M SERVICE CONTRACTS

Control Number: **119** Length: 24 Hours
CEUs: 2.0 PDHs: 20

Purpose.
Course #119 O&M Contracts, builds the foundation for students working with service contracts at civil works operating projects.

Description.
Course #119, O&M Contracts is a three-day course conducted at the USACE Learning Center (ULC) in Huntsville, AL. Course #119 provides an initial exposure to O&M contracts by developing a basic understanding in the preparation and field administration used at civil works operating projects through facilitation of lectures, group discussions, and practical exercises.

Individuals needing instruction in formal Construction Contracts should take the Construction Contract Administration course (#366).

Prerequisites.
Course #119 O&M Contracts is aimed at employees associated with daily or projected assignments involving O&M Contracts for services and supplies at civil works operating projects.

Operations Project Management

Control Number: **245** Length: 40 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course is targeted toward US Army Corps of Engineers employees who aspire to become Operations Project Managers (OPMs). It is taught by existing or former OPMs and national business program managers from a practical management perspective. It is intended to foster a uniform understanding of current programmatic changes, issues, and initiatives in both individual business line areas and general management practices.

Description.
This course is designed to provide students with insight into functioning as an OPM in the areas of the project management business process, budget preparation and execution, communities of practice, human resource management procedures, specific leadership skills, and union/management relations. It also covers individual business lines such as hydropower, flood damage reduction, recreation, navigation, environmental stewardship, and others from both an OPM's and a national perspective. An entire day of this course takes place in the USACE HQ office, exposing students to national senior leaders and program experts.

Prerequisites.
Nominees must be: (a) US Army Corps of Engineers employees: (b) Grade GS-11 or above; and (c) be directly involved in or experienced in the operation and maintenance of USACE operational projects. First consideration will be given to high potential aspiring OPMs who have been so identified by their command.

Paint Coatings and Quality Verification (QV)

Control Number: **84** Length: 36 Hours
CEUs: 3.1 PDHs: 31

Purpose.
This course is designed to develop students' quality verification, analytical, and problem solving skills to identify, prevent, correct, and resolve prevalent problems in the application of paints and coatings. Students will learn the basic concepts of paint composition, coating selection, safety, environmental & sustainability considerations, and construction quality management necessary to administer the painting requirements of project plans and specifications.

This course is identified as a requirement for the Architecture and Interior Design Communities of Practice.

Description.
Through lectures, hands-on demonstrations, analysis of case studies, and laboratory sessions, this course covers such subjects as: paint fundamentals; characteristics and selection of coatings; surface preparation and painting of metals, concrete and masonry surfaces, wood, wallboard, and other miscellaneous surfaces and material types; paint defects; paint approval; testing instruments; painting specifications; and safety, environmental, and sustainability considerations. Construction Quality Management, Maintenance Painting, and changes in guidance and regulations affecting painting are emphasized. Recent changes to the UFGS 09 90 00 and 09 97 02 are emphasized to include the use of the Master Painter's Institute (MPI) specifications and its application to the design-build process and other available online resources.

Prerequisites.
(a) Grade: All (b) Occupational Series: 0800, 1300, 4000, 5318, 5426. Other disciplines will be accepted provided nominee's present or anticipated duties require knowledge of coating systems involved in design, construction or facility maintenance. This includes architects and engineers with design, specification and review responsibilities. This course is open to those individuals from DPWs, BCEs, NAVFAC and other government agencies who are responsible for quality assurance and verification, specifying paint requirements for maintenance or new construction and those serving on constructability review teams.

Partnerships in Natural Resource Management (NRM)

Control Number: **328** Length: 32 Hours
CEUs: 2.6 PDHs: 26

Purpose.
This course is designed to develop an understanding of the capabilities of the Corps of Engineers NRM Partnership Authorities and to promote consistency in partnership policy application, explore alternative management techniques, funding sources and practical applications. Lecturers and instructors include HQUSACE staff, HQ Partnership Advisory Committee Members, and guest speakers.

Description.
Topics to be covered in class will be: a) USACE's NRM Partnership Authorities as described in ER-1130-2-500, b) Partnerships and their applications, c) Benefits of the Handshake Partnership Program and development of applications for Handshake Funds, d) Partnership ethics, e) Cooperating Associations and Cooperative Agreements, f) Contributions, g) Volunteers, h) Lessons Learned and documentation of partnerships in CWBI-OPS. (THIS COURSE FOCUSES ON THE RECREATION AND ENVIRONMENTAL STEWARDSHIP BUSINESS LINE PARTNERSHIPS)

Prerequisites.
(a) Attendance is open to all 0025, 0023, and 0400 series Natural Resource Management personnel, Managers, and Specialists who deal with partners and volunteers on a daily basis. Attendance is also encouraged for Office of Counsel, Real Estate, and Resource Managment staff. No prior knowledge of this topic is required to attend this class.
(b) Grade: GS-05 and above.

Pavement Evaluation and Design

Control Number: **115** Length: 36 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course teaches method and techniques for the evaluation and design of flexible, rigid, and unsurfaced pavements.

Description.
Through lectures, field exercises and discussions, this course covers the general concepts in pavement evaluation and design, selection of pavement system, design procedures, and computer applications. Specific topics include identification of surface deficiencies, PAVER, pavement management systems, field tests of soil, bases, and asphalt layers, rigid, flexible, and unsurfaced pavement design, overlay design, surface and subsurface drainage, and an overview of PCASE. Students shall bring a laptop so that the PAVER/PCASE software can be installed and used during the course.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0800 series; (b) Grade: GS-09 or above and or staff performing construction oversight/QA functions for pavement placements. Student should have a current or projected assignment as a design or construction engineer or be a senior technician responsible for pavement evaluation, maintenance, rehabilitation, or construction.

Plan Formulation and Evaluation Capstone (Planning Core Curriculum Course3)

Control Number: **406** Length: 36 Hours

CEUs: 3.2 PDHs: 32

Purpose.

This course enhances the student's planning knowledge, critical thinking ability, communication skills, and capability to use planning tools and techniques to successfully lead a study to a quality decision document. Through case studies and participatory activities, the course provides the opportunity for planners with some training and experience to apply the critical thinking and decision making skills necessary to be a successful planner.

Description.

Upon completion of the course, the student will be able to apply the techniques and skills needed to lead a study through the six-step planning process. Students will be able to communicate risks and uncertainties associated with the study at each of the Feasibility Study Milestones. The six-step planning process and the importance of collaboration within the interdisciplinary project delivery team will be reinforced in this course. Specific attention is given to risk-informed decision making, the work products to support those decisions, levels of detail necessary for each planning milestone, adequate documentation in a clear manner and vertical team integration. The course follows the framework of the Feasibility Study Milestones with an emphasis on plan formulation strategies, the NEPA process, risk and uncertainty, level of detail, and communication. Presentations and exercises use case studies to apply the tools used during formulation, evaluation and comparison steps of the planning process. The course will be delivered as virtual or on-site training with a field trip incorporated into the on-stie sessions to reinforce course content using current real world examples. This course is the Planning Core Curriculum Course 3.

Prerequisites.

Participants should be currently involved in the planning of civil works water resources development projects. Nominees should be involved in or closely support the planning phase of civil works project development and may include plan formulators, economists, environmental specialists, cultural resource specialists, engineers, physical scientits, project managers, program managers, and real estate specialists. Applicable Occupational Series include, but are not limited to the following: Selected 0020, 0100, 0300, 0400, 0800, 0900, 1100, and 1300 series or others such as public affairs officers, real estate, or counsel that support the development process

Prior completion of the PROSPECT Courses, "Civil Works Project Development Process" and "Planning Essentials", are required for planners. "Planning Principles and Procedures" (PCC2) is an acceptable substitute for Planning Essentials. Civil Works Orientation is an acceptable substitite for Civil Works Project Development Process. Priority will be given to GS5-GS12 students with more than 2 years of current planning experience.

Planning Essentials (Planning Core Curriculum Course 2)

Control Number: **77** Length: 40 Hours

CEUs: 4.0 PDHs: 40

Purpose.
This course enhances the student's knowledge and awareness of the USACE planning process by providing training on the Six-Step Planning Process and how to integrate engineering analysis, public involvement, and environmental and economic considerations during the development and evaluation of alternative plans for the USACE water resources development missions.

Description.
Upon completion of the course, the student will understand the USACE planning process, planning activities and their value in framing and addressing water resources problems. The student will become familiar with the six step plan formulation process and the integrated roles of multiple disciplines critical to this process. Specific attention is given to risk-informed decision making, and the work products and processes to support those decisions such as level of detail and vertical team integration. Additionally, the course will cover the fundamental technical efforts of plan formulation, economic analyses, analyses to determine the social effects of alternatives such as public safety and residual risk, NEPA/Environmental compliance, public involvement, communication, hydrologic and hydraulic considerations, and other engineering analyses important to making investment decisions regarding water resources projects. Course content and assignments will illustrate the USACE planning process and how to apply procedures, guidance, and policy. This is an online course which is delivered over eight weeks through distance learning involving blended synchronous (live webinars) and asynchronous (self-paced) lessons. Most of these lessons are delivered on-demand in Blackboard and consist of self-paced, narrated presentations and videos. These lessons are reinforced with a variety of assignments including some required reading, discussion board posts, and written assignments. Some lessons are presented using live interactive webinars. The syllabus for the class spreads the content out over eight weeks with weekly due dates for required assignments, scheduled times for live webinars, and recommended dates for the completion of on-demand lessons. Students are expected to be available during the eight weeks of the course to adhere to the syllabus, however, some flexibility with the completion of assignments and lessons may be afforded in special circumstances. Students will be graded on the completion of lessons and assignments, attendance to the live webinars and based on the results of a final exam administered the last week of the course.

Prerequisites.
Participants should be currently involved in the planning of civil works water resources development projects. Prior completion of the PROSPECT Course, "USACE Civil Works Project Development Process" is required. Prior to beginning this course, students are required to read the "Planning Primer" (IWR Report 97-R-15). Priority will be given to GS5-GS12 students with less than 3 years of current planning experience.

Power System Design for Civil Works

Control Number: **278** Length: 36 Hours

Purpose.
This course will provide Electrical Engineers with the information and skills to analyze and design low and medium voltage civil works systems/ facilities

Description.
Through lecture, practical exercise and projects, students will be able to identify USACE criteria and industry standards, design low and medium-voltage power distribution systems, motor controller centers, controls and motor starters, DC and preferred AC power distribution systems, discuss arc flash studies, labels and identify software for analysis and load flow, and compare and contrast different grounding schemes.

Prerequisites.
Nominees should be Occupational Series 0850 (Electrical Engineers) and performing design functions for civil works applications

PROJECT MANAGEMENT - MIL PROG

Control Number: **88** Length: 36 Hours
CEUs: 3.2 PDHs: 32 PDUs: 21

Purpose.
This intermediate level course provides the project manager in a programs/project management division with procedures, tools, and techniques necessary to effectively manage military construction (MILCON) projects from design authorization through construction completion. Additionally, this course provides members of the project delivery team (including technical, budget support, scheduling, contracting, legal specialists, etc.) an overview of the Department of Army facility planning, design, construction, and operation/maintenance policies.

Description.
Through lectures, directed discussions and case studies, this course covers project management of military programs using the Army MILCON (MCA) process as the model. It addresses the MILCON budget cycle, regulations and philosophy, planning and programming, the design process, A E and in house design management, A E selection and negotiations, project advertising and award, and project management responsibilities during the design and construction phases. Course focus is on Military Construction (MILCON) processes, application of Project Management Business Process (PMBP), and Project Management (PM) principles contained in ER 5 1 11, U.S. Army Corps of Engineers Business Process. Other programs are covered in general and by analogy.

Prerequisites.
Open to GS-11 or above. First priority will be given to personnel currently assigned as a military programs project manager. Second priority will be given to those personnel currently assigned to a military project delivery team. This is an intermediate level course and prospective students should have taken PROSPECT 355, 'Project Management in USACE' (or courses that provide equivalency) or have demonstrated equivalent work experience.

Project Management IN USACE

Control Number: **355** Length: 32 Hours
CEUs: 2.8 PDHs: 28 LUs: 27 PDUs: 28

Purpose.
This course is designed primarily for those individuals who are, or will be, a project manager in any program area. Project delivery team (PDT) members from functions other than project management may benefit through improved understanding of the project manager's and their own roles and an overview of the project management process.

Description.
The course provides the basic concepts and philosophy of project management and the USACE project management business process (PMBP); it introduces the phases of a project, discusses roles and responsibilities of the PDT, and provides tools for project management. The course seeks, through presentations, discussions, illustrations, team exercises and case studies to provide current guidance in using project management techniques and the PMBP. General project management skills, tools, and techniques are reinforced using civil works and military programs case studies. Instruction covers the development of a project management plan (PMP), project scope, work breakdown structures, and project schedules; techniques for cost estimating, risk assessment/contingency management and performance measurement; resourcing projects, and the civil works and military programs budget cycles. Team dynamics with individual and team strengths are also discussed and illustrated throughout the course. Completing an individual on-line assessment utilizing Clifton Strengths is a course prerequisite. It is intended to be a basic course that may be supplemented by other courses that specifically address in detail such elements as network analysis and scheduling, earned value; or in-depth mission specifics, such as Civil Works or Military Programs. This course does not teach you how to use P2.

Prerequisites.
Nominees should be in Grade GS-11 or above. This course is appropriate for newly assigned project managers or those who anticipate being assigned as a project manager with a minimum of 2 years' experience working with project teams. Additionally, this course may be taken by technical members of the project delivery team (PDT) to include budget, scheduling, contracting, and legal personnel requiring an overview of the project management process and procedures.

Project Management Professional (PMP Prep)

Control Number: **402** Length: 36 Hours
CEUs: 3.5 PDHs: 35 PDUs: 27

Purpose.
This course will provide experienced USACE program and project managers a needed common language and baseline understanding of global standard project management practices, procedures, tools, and techniques in managing the execution of complex projects with a variety of customers and contractors.

Description.
At a minimum, learn, identify, understand (in detail) the ten project management knowledge areas (integration, scope, schedule, cost, quality, human resource, communications, risk, stakeholder management and procurement), the five project management process groups (initiation, planning, executing, monitoring & controlling, and closing), global project management terminology, project management tools and techniques, test-taking strategies, and professional ethics. Also, the course will outline the steps and requirements to apply for the PMP certification exam and support provided by the USACE Program and Project Management Community of Practice.

Prerequisites.
Attendees (a) must have a minimum of 3 years of full-time project management experience (with a bachelor's degree or higher) OR 5 years of full-time project management experience (b) should have began preparing for PMP exam (c) should register for a free PMI account at PMI Registration (d) should review PMI video, Maintaining Your PMI Credential: Introduction only (2:17 minutes), and should add their intent to take the PMP exam to their Individual Development Plan.

Public Involvement - Communication

Control Number: **91** Length: 36 Hours
CEUs: 3.2 PDHs: 32 PDUs: 32

Purpose.
The course prepares staff to communicate and engage with the public about the broad range of agency activities and decisions, and to build stakeholder relationships.

Description.
Students who attend this course will build a communication strategy (for on-going or project-specific activities), including identifying audiences, developing key messages, and choosing appropriate virtual and face-to-face strategies and tactics. Students will gain an appreciation for the importance of effective communication and the value of public involvement in supporting the USACE mission. Students will leave with tools, tips and techniques for communicating more effectively and handling challenging situations.

This course will develop proficiencies in strategic planning for public involvement and effective communication in USACE activities, delivering presentations, responding to audience questions, building trust, developing and delivering key messages, designing public meetings and workshops, and managing conflict. Skill-building activities, case studies, and group projects are used throughout the course to give students the opportunity to directly apply course concepts.

Prerequisites.
This course is for staff whose responsibilities require communicating with and engaging the public about agency activities and decisions. Nominees should be assigned (a) Occupational Series: selected 0100, 0020, 0021, 0023, 0025, 0026, 0300, 0400, 0800, 1000 and 1300; (b) Grade: Suggest Target Audience be GS 9-14, including Rangers, Park Managers, Project Managers, and anyone who does or may engage with the public during any phase of a project, from planning to operations.

Public Involvement and Team Building in Planning

Control Number: **407** Length: 36 Hours
CEUs: 2.8 PDHs: 28 PDUs: 24 CMs: 27

Purpose.
Corps of Engineers planners typically work in multi-disciplinary teams, often involving project sponsors, other federal and state agencies, and occasionally stakeholder groups or private individuals. These teams, in turn often consult with a broader public and communities with environmental justice considerations, identifying and addressing public concerns as the agencies proceed through the planning process. This environment requires skills for successfully designing and conducting processes that meaningfully engage and effectively draw together the different partners and stakeholders throughout the planning process, resulting in decisions that enjoy broad public support. This process also requires skills for effective communication and message delivery.

Description.
This course will concentrate on the methods, techniques, and skills that assist Corps of Engineers Civil Works Planning teams with developing a high-functioning team and engaging meaningfully with sponsors, stakeholders and interested parties throughout the life of the study. Participants will learn ways to raise awareness of ongoing studies and efforts, integrate stakeholder values and concerns into the formulation and evaluation of projects, manage conflicts and disputes, communicate effectively, and develop strategies to equitably align participation activities with the Corps of Engineers Six-Step Planning Process. By the end of this course the student will be able to develop an effective stakeholder engagement strategy for communication plans, effectively lead and participate in teams, design and facilitate an interactive public meeting or workshop, and respond to media requests effectively. The course was formerly known as PCC7.

Prerequisites.
Nominees should be Civil Works planners, project managers, public affairs specialists, engineers, real estate specialists or other disciplines assigned to a planning study team. Students should have basic working knowledge of the Corps of Engineers Six-Step Planning Process and Civil Works Process. Prior completion of Civil Works Project Development Process and Planning Essentials or equivalent courses is highly recommended.

Quality Management for Engineering

Control Number: **208** Length: 28 Hours
CEUs: 2.5 PDHs: 25 LUs: 24

Purpose.
Improve the quality of projects, products and services, and enhance customer satisfaction by training students in the policies, principles, processes and tools of Engineering and Design Quality Management (E&D QM). Emphasize Quality Management's role in Engineering and its importance for meeting USACE Engineering & Construction strategic goals.

Description.
The course focuses on teaching students USACE policy guidance as outlined in ER 1165-2-217 (Civil Works) and ER 1110-3-12 (Military Programs). Students will gain a deeper understanding of the policies, principles, processes, and tools used in project design and execution. Emphasis is placed on the application of E&D QM policies, including project design, criteria development, designer selection, project design review, and the construction phase. The course covers the design of projects by both private sector architect-engineering firms and in-house technical personnel. The course highlights USACE technical quality, timeliness, and cost-effectiveness in project delivery. Instruction includes classroom presentations, active discussions, and group exercises.

Prerequisites.
This course is intended for personnel in occupational series 0800 and 0340: GS-07 and above. Experience: 0-3 years and actively engaged in design. Nominees should possess a sound knowledge of USACE Business processes and USACE Design Guidelines. This course is also for those in other series actively and directly involved in design development, design review, and AE contract administration processes. Customers and employees of other agencies having an interest in Corps E&D QM processes are encouraged to participate.

RADIOACTIVE WASTE TRANSPORT/DOT RECERTIFICATION

Control Number: **430** Length: 20 Hours

Purpose.
This 20-hour course provides recurrent training regarding the regulatory requirements of the Hazardous Materials Transportation Act (HMTA) and the Resource Conservation and Recovery Act (RCRA) as it applies to the generation, transportation and disposal of hazardous waste and Class 7 and 9 radionuclides. It enables employers to certify as required in 49 CFR 172 Subpart H, that their employees have been trained and tested in general awareness and function-specific elements as described below. In addition, this is a DoD approved course as per DoD 4500.9-R. (Note: Certain RCRA and safety related training elements required by 49 CFR 172 Subpart H and 40 CFR 265.16 are typically site-specific and must be performed on the job.)

Description.
Training topics covered the identification and classification of hazardous waste for purposes of preparing a hazardous waste manifest and fulfilling the DOT requirements for shipping hazardous wastes. Specifically, training topics include RCRA waste classification; land disposal restrictions and notification; manifesting requirements; identification of a DOT Reportable Quantity; use of the Hazardous Materials Table; and DOT requirements for determining a shipping name, properly packaging, labeling, marking, placarding, DOT emergency response requirements, and general security awareness. In addition, the course addresses special EPA and DOT requirements for shipping asbestos and PCBs.

Prerequisites.
This is a refresher course. Students must have previously completed either PROSPECT course #223 or another initial training as specified under 49 CFR 172, Subpart H and initial radioactive waste training. This course is primarily targeted at persons in the following job series: 0800, 0820, 0809, 0810, 0819, 0028, 0029, 0025, 0026, 0401, 1350, 1301, 0893, 0830, 1306, and 1320. (All series involved with environmental programs including engineers, chemists, industrial hygienists, health physicists, biologists, geologists, hydrogeologists, program managers, project managers, etc.) as well as all Installation environmental staff, Civil Works Environmental Compliance Coordinators, and Civil Works personnel required to sign hazmat shipping documents and/or hazardous waste manifests. The training is designated for persons with any of the following job responsibilities: identification of proper shipping names for hazardous and/or radioactive waste in accordance with DOT regulations; selection of appropriate packagings, markings, labels and placards in accordance with DOT regulations; RCRA waste identification and classification; completion or review of hazardous waste manifests and/or land disposal restriction notifications; preparation of shipping documents for radioactive waste, used oil, asbestos and PCBs; shipping of analytical samples; loading or unloading of radioactive or hazardous wastes; and transportation of hazardous materials in general.

Real Estate Mgt and Disposal 101

Control Number: **7** Length: 24 Hours
CEUs: 2.2 PDHs: 22

Purpose.
The real estate management and disposal mission of the Department of the Army has no counterpart in the private sector. The laws, regulations, and policies pertaining thereto are unique to the Federal Government. This course provides a basic overview of the outgrant and disposal policies, procedures and regulations for Army and Corps of Engineers projects, with emphasis on routine actions that use standard formats, such as licenses and building disposals.

Description.
The course includes lectures, class discussions, problem solving, and testing. Topics for presentation address (a) authorities, documents, and procedures for placing property in excess status or to approve disposal; for GSA disposal, agency disposal, or special authority disposal, (b) disposal document preparation, (c) authorities, documents, and procedures for making property available for use by others, (d) routine outgrant document preparation, (i) outgrant management and administration, (j) environmental considerations and (k) negotiation skills. After completion of this course the student should have a foundation upon which to begin work on routine actions and, with additional study and experience, advance to more advanced real estate management and disposal actions.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0905, 1101, 1170, and 1171; (b) Grade: the GS-05 through GS-11; (c) personnel primarily assigned to real estate functions within the Corps of Engineers. Individuals outside prerequisite occupational series and grade and those actively interact with real estate activities (such as Operations staff, master planners, and Installation DPW staff) will be considered on a space available basis. Nominees should have a general understanding of the Corps of Engineers organizational structure, which generally requires on the job experience for a minimum of 6 months, and have read the pertinent Army Regulation and Real Estate Handbook, ER 405-1-12, Chapters 8 and 11.

Real Estate Acquisition 101

Control Number: **79** Length: 24 Hours
CEUs: 2.0 PDHs: 20

Purpose.
The real estate acquisition mission of the Department of The Army has no counterpart in the private sector. The laws, regulations, and policies pertaining thereto are unique to acquisition of real estate by the Federal Government or in conjunction with Federal projects. This course provides a basic overview of the land acquisition policies, procedures and regulations for Army and Corps of Engineers projects.

Description.
The course includes lectures, class discussions, problem solving, and testing. Topics for presentation address (a) project planning, documents, and authorities, (b) elementary mapping and legal descriptions, (c) title evidence, (d) just compensation, (e) condemnation, (f) general fundamentals of appraisals for land acquisition, (g) interest and estates in land, (h) local cooperation and cost-sharing, (i) environmental considerations, (j) negotiation skills, and (k) crediting for land provided by project sponsors. After completion of this course, the student should have a foundation upon which, with additional study and experience, a knowledge base in real estate acquisition can be built.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0318, 0905, 1101, 1170, and 1171; (b) Grade: GS-07 through GS-11; (c) personnel primarily assigned to real estate functions within the Corps of Engineers. Individuals outside the prerequisite occupational series and grade and those actively engaged in real estate activities (such as planners and project managers) will be considered on a space available basis. Nominees should have a general understanding of the Corps of Engineers, which generally means experience of about 6 months or more, and have read the Real Estate Handbook and other Army policy related to acquisitions.

Real Estate Acquisition 201

Control Number: **121** Length: 24 Hours
CEUs: 1.9 PDHs: 19

Purpose.
The real estate acquisition mission of the Department of the Army has no counterpart in the private sector. The laws, regulations, and policies pertaining thereto are unique to acquisition of real estate by the Federal Government or in conjunction with Federal projects. This course provides an advanced overview of the land acquisition policies, procedures and regulations for Corps of Engineers Civil Works water resources projects.

Description.
The course includes lectures, class discussions, problem solving, and testing. Topics for presentation address (a) preparation of real estate plans, (b) just compensation, (c) estates in land, including non-standard estates, (d) environmental considerations, (e) Continuing Authority Program (CAP) issues, (f) crediting for land provided by project sponsors, (g) utility and public facility relocations and, (h) Project Partnership Agreements (PPA) principles.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0318, 0905, 1170, and 1171; (b) Grade: GS-11 and above; (c) personnel primarily assigned to real estate planning or acquisition functions for Corps of Engineers Civil Works projects. Individuals must have completed RE Acquisition 101, Course No. 079, 49REA01A, or have equivalent experience. Individuals outside the prerequisite occupational series and grade and those actively engaged in real estate activities (such as planners and project managers) will be considered on a space available basis. Nominees should have an advanced understanding of the Corps of Engineers organizational structure and have read pertinent Real Estate regulations.

Real Estate Mgt and Disposal 201

Control Number: **73** Length: 28 Hours
CEUs: 2.6 PDHs: 26

Purpose.
The Real Estate management and disposal mission of the Department of the Army real Property has no counterpart in the private sector. The laws regulations and policies pertaining there to are unique to the Federal Government. This course provides an advanced overview of the Management and Disposal portion and management and disposal mission, policies, procedures, and regulations for Army and Corps of Engineers projects with emphasis on complex actions and outgrants.

Description.
The course includes lectures, class discussions, problem solving, and testing. Topics for presentation address (a) authorities, documents and procedures for various types of disposals, and complex outgrants, (b) preliminary environmental due diligence documentation, (c) management of title, encroachments and boundary disputes,(d) Postal disposal activities (e) authorities, documents and procedures for making property available for use by others, (f) complex outgrant document preparation, (g) outgrant management and administration. After completion of this course the student should have a more advanced knowledge of the concepts, practices and principles of real estate management and disposal actions, although additional study and experience will be required.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0905, 1170, and 1171; and other job series assigned to the real estate elements (b) Grade: GS-11 and above; (c) personnel primarily assigned to real estate management and disposal functions within the Corps of Engineers. Individuals must have completed RE Management and Disposal 101, Course No. 007, 49RED01A, or have equivalent experience. Individuals outside the prerequisite occupational series and grade will be considered on a space available basis. Nominees should have an advanced understanding of the Army regulations and the appropriate Engineer regulations.

Real Estate Project Mgt & Control(RE PM&C)

Control Number: **144** Length: 24 Hours
CEUs: 1.7 PDHs: 17

Purpose.
The real estate planning and control (P&C) function of the Corps of Engineers, Real Estate elements comprises a myriad of duties and responsibilities. This course provides a basic overview of the planning and control policies, procedures and regulations for Corps of Engineers mission support. The course outlines how P&C interfaces with other elements of the Corps and addresses broad aspects of the fiscal, manpower, planning, and real estate management information systems within real estate, Corps of Engineers, and the Army.

Description.
The course includes lectures, class discussions, problem solving, and testing. Topics for presentation address (a) real estate planning, budgeting, and manpower, (b) real estate surveying, land descriptions, (c) real estate data validation and records management, (d) real estate accountability and Chief Financial Officer Act issues, (e) authorities, documents, and procedures, (f) real estate aspects of Life Cycle Project Management, and (g) use of automated Real Estate information systems and their interaction with other Army and Corps systems. After completion of this course, the student should have a foundation upon which to begin work on routine actions and, with additional study and experience, advance to more advanced real estate P&C actions.

Prerequisites.
Nominees must be assigned (a) Grade: GS-05 and above and (b) personnel primarily assigned to real estate functions within the Corps of Engineers. Individuals outside the prerequisite grade and will be considered on a space available basis. Nominees should have a general understanding of the Corps of Engineers, which includes a minimum of 6 months experience, and have read pertinent Real Estate regulations.

Real-Time Water Management With CWMS

Control Number: **155** Length: 36 Hours

Purpose.
The Corps Water Management System (CWMS) is the automated information system (AIS) supporting the Corps' water control operations mission. CWMS provides data collection, processing, decision support modeling, data dissemination, and graphics tools to allow each local office to effectively execute their water management mission in real-time. This course will provide water managers the training necessary to effectively use hydrologic and hydraulic modeling software in CWMS for real-time operations. The students will learn specialized features of CWMS, including calibration and execution of model programs in support of the daily decisions made in the course of Corps project operations.

Description.
Topics will include:

1) The use of CWMS hydrologic and hydraulic models (HEC-HMS, HEC-ResSim, HEC-RAS and FIA) through the Control and Visualization Interface (CAVI).
2) Calibration of model parameters in real-time.
3) How to model and evaluate possible hydro-meteorological and operational scenarios, in real-time, to improve reservoir operations.
4) Specialized CWMS concepts and tools, such as real-time data usage and scripting. This class does not address the installation of CWMS or the development of models.

Prerequisites.
Nominees must be assigned:
(a) Occupational Series: Selected 0400, 0800, and 1300
(b) Grade: GS-09 or above.
(c) Nominees should be water control managers, hydrologists, or hydraulic engineers.
(d) Nominees should have some experience and responsibility for real-time reservoir or flood control operations and with the H&H models mentioned above

REGULATORY I

Control Number: **100** Length: 24 Hours
CEUs: 2.1 PDHs: 21

Purpose.
This course provides a comprehensive background in the Regulatory Program and an understanding of current Regulatory policies and procedures. The instruction focuses on hands-on learning in a case-study decision-making environment.

Description.
This course covers a broad range of topics that personnel in the Regulatory Program must be familiar with in order to make timely and legally defensible decisions. Topics to be covered include (a) Background and Program Overview; (b) Permit Process; (c) Jurisdiction; (d) Reviewing and Assessing Applications; (e) 404(b)(1) Guidelines; (f) Compliance and Enforcement; (g) Site Inspection; (h) NEPA Compliance; (i) Special Policies and Procedures; (j) Construction Method; (k) Decision-Making Process/Public Policy Process; (l) Permit Documentation; (m) General Permits; and (n) Conflict Management/Public Involvement. This course primarily focuses on providing hands-on training and case studies to reinforce the policies and regulations learned.

Prerequisites.
Nominees may be assigned to the following Occupational categories: 020, 028, 099, Series 0100,0300, 0400, 0800, 0900, 1300, and selected others; (b) other; Nominees should work in the Regulatory functions program. However, other Corps employees required to support Regulators could benefit from this course and can request a spot but will be placed only if there is sufficient availability. Only Regulators can be assigned priority 1.

We are now offering prerequisites through Blackboard. The completion of lessons 1 - 26 is required prior to attending REG 1. The online training lessons are available in the USACE blackboard. This online training is available to all USACE employees may be accessed at: https://learn.llc.army.mil/

Instructions for enrolling for Modules:
1. Log into USACE Blackboard using your CAC/PKI

2. Select the COURSES tab in the upper right corner

3. Locate the USACE Regulatory Training Courses catalog on the left side of the page. Select the folder USACE REGULATORY TRAINING COURSES.

4. When the training catalog opens, locate the desired course and select the caret next to the course you want to enroll, then select enroll. Then select OK to go directly to the Module.

5. Once enrolled, you may return to the COURSE tab and the course should now be listed under MY COURSES.

6. Double click the course and it will launch.

Regulatory IIA

Control Number: **322** Length: 32 Hours
CEUs: 2.0 PDHs: 20

Purpose.
This course provides in-depth discussion of the procedural issues related to the more complicated laws, regulations, and policies which Corps regulators are called upon to enforce.

Description.
This course covers scope of analysis, cumulative impacts, historic properties, tribal issues, and endangered species.

Prerequisites.
Target Audience: Supervisors, project managers, enforcement officers, journeyman level regulators with a minimum of two years' experience in grade level Gs-07 and above.

Nominees must have attended the Regulatory I training course and/or the DL Corps Regulatory Program "onboarding" modules listed on the USACE Blackboard Learning Management System (LMS). This course is only open to Corps Regulatory Program staff.

Regulatory IIB

Control Number: **323** Length: 32 Hours
CEUs: 2.1 PDHs: 21

Purpose.
Course 323, Regulation IIB provides an in-depth discussion on enhanced complex decisions made throughout a permit evaluation process to produce a fair and timely decision.

Description.
Course 323, Regulation IIB covers jurisdiction, exemptions, permit types, purpose, need, alternatives analysis, 404(b)(1) guidelines, public interest review, consideration of comments, documentation, administrative appeals, and compensatory mitigation.

Prerequisites.
Nominees must complete the Blackboard Corps Regulatory Program lessons 1- 26 and modules 32, 37, 41-44) in the USACE Blackboard (https://usace.llc.army.mil) USACE Regulatory Training link. Or attended CoE Regulatory I Course. Course 323, Regulation IIB is designed to augment Supervisors, Project Managers, Regulatory Enforcement Officers, and Regulators with 2 years of regulatory experience and those who currently provide a supporting role in regulatory decisions. CoE Regulatory Program staff, including Office of Counsel staff responsible for supporting Regulatory decisions. Nominees must be or assigned to Occupational classification: Series 0100, 0400, 0800, 0900, and 1300 / (select) 0020, 0028, 0099),Regulatory Supervisors, Regulatory Project Managers, Regulatory Enforcement Officers; and their Regulators with 2 years' experience.

REGULATORY IIC

Control Number: **370** Length: 24 Hours
CEUs: 2.1 PDHs: 21

Purpose.
This course provides in-depth discussion specific to permit evaluations associated with project proposals in coastal areas, including the Great Lakes. It is designed to be complementary to the Regulatory IIA and IIB curricula, not to replace them, providing regulators with the specific background necessary to effectively and efficiently evaluate projects proposing to impact coastal aquatic resources. Previously, this information was included in Regulatory IIA and IIB; however, as the Regulatory program increases in complexity, it is necessary to devote additional time to issues specifically related to the coastal zone.

Description.
The course will provide a comprehensive background related to coastal issues, focusing on coastal processes and activities, jurisdiction, essential fish habitat, coastal species/habitat protection and conservation, and coordination with other Corps business lines and other agencies with related missions using a cast study approach.

Prerequisites.
Completion of lessons in Modules 33 and 68 in Blackboard is strongly recommended. Completion of REG I or Modules 1-26 in Bb, and at least 1 of the following Regulatory IIA, Regulatory IIB, or NEPA for Regulators is required. TARGET AUDIENCE: Includes all Corps Regulatory staff and Corps Counsel whose duties require them to evaluate and manage Regulatory Program actions in coastal Districts (i.e., Great Lakes, Atlantic Ocean, Gulf of Mexico, and Pacific Ocean). Other Corps employees required to support Regulators may benefit from this course and may request a seat. Placement is based on availability. Only Regulatory staff and Corps Counsel can be assigned priority 1.

Regulatory III

Control Number: **325** Length: 24 Hours
CEUs: 2.1 PDHs: 21

Purpose.
As part of the Corps of Engineers Regulatory program, this course provides in depth discussion of enforcement policies and procedures. It covers a wide range of topics that include the investigation of unauthorized activities and compliance with Department of the Army permits.

Description.
This course provides in depth instruction regarding 33 CFR 326 as it pertains to the Corps of Engineers enforcement authorities. Covering topics such as enforcement policy, investigation and resolution options for unauthorized activities, performance of permit compliance, resolution options for permit non compliance and several other topics. The discussion of case studies will be used to deliver relevant information and equip students with the skills to undertake enforcement or non compliance actions.

Prerequisites.
Prior to attending this course, nominees must have completed:

- Module 71 in the USACE Blackboard (https://usace.ellc.learn.army.mil) plus PROSPECT Course 100, Regulatory I

OR

- Module 71 plus Modules 1-26 in the USACE Blackboard

Reservoir Systems Analysis with HEC-ResSim

Control Number: **98** Length: 36 Hours

Purpose.
This course provides participants with the capability to perform reservoir system studies using the HEC-ResSim reservoir operations simulation software. After completing the course, students will be able to use HEC-ResSim to build, modify, and run reservoir models and analyze results

Description.
HEC-ResSim is reservoir operation simulation software that can be used to model individual or systems of reservoirs. It is typically used by USACE for planning studies and real-time simulation of reservoir operations for flood control, water supply, hydropower and multipurpose operation. This course incudes a mix of lectures and workshops. Materials cover the basic principles for simulating reservoir systems, including authorized purposes, operational goals, physical and operational data requirements, and analysis considerations. Students will gain hands-on experience in building a ResSim model from scratch, interpreting operational objectives into model parameters, running simulations, and viewing/analyzing results. Advanced topics such as system demands, hydropower, operating for downstream objectives, and developing scripts will also be introduced.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0800 and 1300; (b) Grade: GS-07 or above. A basic level of understanding is required in hydrology, hydraulics, and reservoir regulation. In addition, it is strongly recommended that course participants be in positions where they will be involved in reservoir system studies within the next year or two.

Riparian Zone Ecology/Restoration/MGT

Control Number: **281** Length: 36 Hours

CEUs: 3.2 PDHs: 32

Purpose.

This course addresses planning and management issues that pertain to riparian (streamside) ecosystems in a variety of ecological and geographical settings. Emphasis is placed on the ecology, restoration and stewardship of riparian habitats associated with Civil Works projects and activities. Students will receive instruction on the functions and ecological importance of riparian zones, conservation needs, potential impacts resulting from various land use practices, and restoration and management techniques that can be applied to maintain or improve riparian systems.

Description.

Through a series of lectures, practical exercises, and field activities, students will be introduced to the following topics: (a) riparian functions, values, and trends; (b) riparian ecology (vegetation, fauna; will include sessions on the importance of riparian zones to mammals (emphasis on bats), reptiles/amphibians, and neotropical migrant birds); (c) inventory and monitoring techniques; (d) impacts (hydrologic changes, vegetation modification, non-native invasive species, agricultural practices, bank erosion, non-point source pollution); (e) restoration methods (including monitoring and adaptive management); (f) fluvial geomorphology combined with a multitude of stream/riparian restoration case studies, and (g) management strategies (including development of appropriate designs for corridors and buffer strips). Students will participate in a day-long field trip to local rivers and a large dam removal site with associated restored riparian floodplains, to examine riparian habitats and demonstrate restoration monitoring and adaptive management techniques. Case studies will be presented on riparian issues at Civil Works projects and military installations. SUBJECTS AND LEARNING OBJECTIVES. Students will be able to characterize riparian habitats, understand the functions and values of these habitats, and make the most appropriate decisions regarding their restoration, use, conservation, and management from an ecosystem perspective. Applicable laws, regulations, and agency policies will be reviewed. Students will be able to identify specific techniques and procedures for inventorying, assessing, analyzing, and evaluating the status of riparian resources and associated impacts upon these resources.

Prerequisites.

Nominee assignments should be: (a) primarily technical personnel whose duties involve the identification, evaluation, analysis, protection or management of ecological resources. Project and Program Managers responsible for project and program management activities, particularly those involving ecosystem restoration, would also benefit; (b) Occupational series: 0020s, 0150, 0185, 0190, 0198, 0400s, 0800s, 1023, 1350 to include physical scientists, environmental protection specialists, and hydrologists; and (c) Grade: GS-09 or above. Disciplines (other than the above) may be accepted provided nominee's present or anticipated duties involve the management, analysis, identification, protection, or evaluation of ecological/natural resources.

RISK ANALYSIS-WRP&M

Control Number: **349** Length: 36 Hours
CEUs: 3.1 PDHs: 30

Purpose.
This course introduces concepts and tools of risk analysis into Corps of Engineers planning studies and extends these concepts to studies for structural rehabilitation and for management and operations of existing projects. Risk analysis is a decision-making framework that explicitly evaluates the level of risk if no action is taken and recognizes the monetary and non-monetary costs and benefits of reducing risks when making decisions. Risk analysis also deals with uncertainties in models, parameters, and assumptions and acknowledges them in decision making. Risk analysis comprises three tasks: risk assessment, risk management, and risk communication. Many risk assessment techniques are already in use by Corps analysts, but are not applied in systematic and uniform manner. New methods and analytical models have been developed, along with a body of information on risk perception and communication that will also be transferred to practice.
Risk analysis is an integral component of Corps of Engineers decision making in all business lines. It affects all technical analysis throughout each step of planning process. For example, risk perception and communication is an important element of the scoping process. Environmental analysis, hydrologic analysis, and benefit-cost analysis all require aspects of risk analysis. In addition, risk concepts and risk informed decision making are being extended to aid decisions in all phases of project life. Major aspects of risk analysis included in this course are (a) definitions and concepts, (b) probability and statistics; (c) models for risk analysis; (d) non-quantitative methods; (e) event trees and decision trees; (f) Monte carol simulation; (g) using scenarios; (h) benefit-cost uncertainty; (i) risk informed planning; and (j) case studies from various applications to civil works. The course includes extensive use of computer exercises as aids to learning including hands-on risk modeling and assessment tools.

Description.
After completing this course the student should be able to: 1. Discuss the major causes of uncertainty in the Corps' Civil Works Program; 2. List the elements of integrated risk management; 3. Describe the differences between uncertainty and variability; 4. Use scenarios to deal with uncertainties; 5. Apply one or more qualitative risk assessment techniques; 6. List the Corps' software tools that support risk-informed planning; 7. Build a simple probabilistic scenario analysis in a spreadsheet environment; 8. Apply the addition, multiplication, and complimentarily rules for probability in simple problems; 9. Use the binomial distribution for simple probability calculations; 10. List the most useful distributions used in quantitative risk assessment; 11. Develop a distribution given some data; 12. Describe the two steps of the Monte Carlo process; 13. Run a simulation that uses the Monte Carlo process; 14. Conduct basic sensitivity and importance analysis; 15. Understand the issues of communicating technical and non-technical risk information to decision makers and stakeholders.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0020, 0340, 0110, 0801, 1300; (b) Grade: GS-07 through GS-13. This course is designed for planners and engineers. However, other personnel (project managers, operations, regulatory, recreation, etc.) will find it useful in terms of broadly applicable principles, concepts, and analytical tools.

Risk Communication and Public Participation

Control Number: **104** Length: 32 Hours
CEUs: 2.1 PDHs: 21 PDUs: 25

Purpose.
This course, students will prepare for and develop skills for communicating to external stakeholders and our publics about our projects that include aspects of risk.

Description.
This is a very interactive training where students will prepare for and develop skills for communicating risk to external stakeholders and the public. Students will: (1) identify why USACE needs to engage stakeholders and publics in our work; (2) develop a communication plan for a project; (3) evaluate how to respond to different types of challenging questions; (4) identify best practices for communicating technical information in an emotional arena; (5) identify best practices for communicating technical information effectively to a lay audience; and (6) determine how to engage and work with public affairs, the media, and social media.

Prerequisites.
Target audience includes USACE Civil Works employees who interact with the public on a regular basis, such as those who work in Dam and Levee Safety, Emergency Management, Environmental, Flood Risk Management, FUSRAP, Operations (Recreation, Navigation), Regulatory, Planning, and Engineering and Construction. [Note: A version of this course is offered through the FUDS training program as FUDS 102 – Effective Communication for FUDS.]

Safety Management for SUPV and LDRS

Control Number: **236** Length: 24 Hours
CEUs: 2.1 PDHs: 21

Purpose.
This course is designed for Army Corps of Engineers (USACE) field managers, leaders and/or supervisors who have responsibility for overseeing USACE activities including construction and operational activities. This 3-day course will provide managers and supervisors with current Corps of Engineers safety and occupational health management system (CE-SOHMS) requirements, hazard assessment, risk management, and accident reporting guidelines. Through open discussions and group participation, this course will bring together OSHA, USACE, and consensus standards that apply to typical USACE activities. Participants will learn how to implement and manage Safety and Occupational Health programs specific to their area of operations and will receive an OSHA 10-hr card.

Description.
The basic references for this course are the Corps of Engineers' Safety and Health Requirements Manual, EM 385-1-1, applicable OSHA and consensus standards. This 3-day course will provide through various formats, information considered necessary and essential for field supervisors, project managers, area, resident, project engineers, operations managers, supervisors, and work team leaders in executing their day-to-day safety and health responsibilities. This course also has direct application for other Corps of Engineers field personnel in related career fields, e.g., Collateral Duty Safety Officers (CDSOs), supervisory rangers, drill crew foremen, lockmasters, hired labor supervisors, survey crew leaders, fleet superintendents, safety and occupational health professionals, etc.
The objective of the course is to prepare supervisors and leaders to integrate Supervisor Engagement and Employee Participation, Accident Investigation and Reporting, Training and Promotion, Inspections and Assessments, Risk Management, and Health Promotion and Readiness into the workplace. Some of the specific topics covered in this course will include: (a) Introduction to OSHA; b) SOH Programs; c) Program Documents; d) Risk Management; e) Mishap Reporting; f) Fall Hazards; g)Electrical Hazards; h) Struck-by Hazards; (i) Caught in/Between Hazards; (j) Personal Protective Equipment; (k) Crane Hazards; (l) Scaffold Hazards;(m) Stairway/Ladder Hazards; n) Tool Hazards; o) Confined Space Hazards; p) Walking Working Hazards; and q) Health Hazards.

Prerequisites.
Nominees must be assigned (a) at the operating level in Corps of Engineers construction and/or operational activities; (b) current or projected assignment as manager, supervisor, leader or equivalent.
Each student must arrive with a laptop with appropriate CAC credentials for the USACE network in order to access the required Blackboard resources.

Scheduling Basics for Projects

Control Number: **143** Length: 30 Hours
CEUs: 2.7 PDHs: 27 PDUs: 24

Purpose.
The Corps of Engineers relies on project management principles. Scheduling techniques are essential to project management and are required by USACE regulations. PROSPECT 143 will teach the fundamentals of project scheduling (including key terminology, concepts, and tools) while reinforcing Lieutenant General Graham's emphasis on "getting it right." As he notes, "We have to be able to see ourselves better to know how we are doing in delivering our projects," underscoring the critical importance of effective project scheduling.

Description.
Participants will:
- Develop a solid understanding of network scheduling principles.
- Gain hands-on experience with Primavera to define activities, set durations, and create dependencies.
- Practice updating schedules by tracking progress, adjusting durations, and managing changes.
- Perform manual and computer-based schedule analysis using Primavera.
- Apply schedule development and diagramming techniques to visualize project timelines.
- Learn the Critical Path Method (CPM) to calculate and manage critical and near-critical paths.
- Manage the effects of project delays and scope changes on overall timelines.
- Define, review, and analyze project schedule quality for accuracy and completeness.

Prerequisites.
Students should have a current or projected assignment requiring the ability to develop, analyze, or update a schedule.
Prior knowledge of a network system or Primavera is not required. This course is highly desirable for any PDT member working to learn scheduling techniques to support the team.

Seepage and Piping Analysis

Control Number: **250** Length: 36 Hours

Purpose.
This course teaches Corps of Engineers designers and field engineers about seepage analysis and control measures for common USACE projects using engineering judgment and considerations.

Description.
The course will cover the principles of seepage through soils, related problems with erosion and piping, and methods for preventing and mitigating these problems. Specific topics will include Darcy's law, permeability of soils, flow nets, free surface problems, erosion and piping, filter criteria, remedial measures, and use of computer programs for design and analysis.

Prerequisites.
Nominees should be:

- Assigned occupational series 0810 (Geotechnical) or 1350 (Geology)
- GS-07 or above
- Possess a geotechnical educational background OR at least 1 year of job experience in geotechnical evaluation
- Prepared to provide proof of completion of “GeoStudio 2D Basics” or “GeoStudio Remote Getting Started” in advance of the course. Submission instructions will be provided after course registration.
- Install the latest version of GeoStudio approved by CIO/G6 and link GeoStudio to your Bentley account. Further instructions will be provided after course registration.

Seismic Stability of Earthen Dams

Control Number: **247** Length: 36 Hours

Purpose.
This course provides Corps of Engineers personnel with the knowledge, skills, and abilities needed for assessing the seismic safety of Corps dams and levees along with other earth structures with state-of-the-practice analytical tools and procedures.

Description.
Through a series of lectures, case studies, and laboratory demonstrations, students will introduced to the following topics: (a) Introduction to USACE ER and EMs on earthquake engineering, (b) earthquake characteristics and earthquake ground motions; (c) site characterization; (d) site response analysis; (e) liquefaction assessment and post-liquefaction residual strength evaluation; (e) slope stability and seismic deformations; and (f) remediation alternatives.

Prerequisites.
Nominees must be assigned: (a) Occupational series: 0810 and 1350; and (b) Grade GS-09 and above.

NOTE (2018-Oct-05): students must have a geotechnical educational background or at least 5 years of job experience in geotechnical evaluation.

Services Contracting

Control Number: **89** Length: 24 Hours
CEUs: 2.0 PDHs: 20

Purpose.
The course objective is to reinforce the knowledge and skills for proper contract oversight, surveillance, compliance, and post-award documentation with emphasis on service contracts. Primarily this course is to mitigate risk by clarifying roles, responsibilities and accountability during post-award management. While the contracting officer is ultimately responsible for contract oversight, this course stresses the requirement to have properly trained and certified Contract Specialists, ACOs, and CORs. Through instruction and group exercises, students will gain the technical expertise needed to ensure these requirements are met.

Description.
Upon completion of the course, the student will be able to plan for post-award/contract administration oversight, identify roles and responsibilities of contracting authority and accountability for contracts/processes, technical proficiencies by acquisition team members, and fraud waste and abuse; ensure compliance, consistency, and oversight of documentation for quality management; check accuracy of timelines for oversight, checks and balances, and process/action verification; and validate approvals, pricing, and price reasonableness determinations.

Prerequisites.
Nominees must perform contract oversight and surveillance and assigned to Series 800, 1100, 1900, Project Managers, Legal Advisors, Performance Assessment Personnel, and subject matter experts (SMEs) serving as technical or performance monitors. NOTE: This course is not open to contractors.

Specifications for Construction Contracts

Control Number: **185** Length: 32 Hours

Purpose.
This course offers comprehensive guidance on crafting effective specifications for construction projects. Covering the principles, techniques, and procedures of specification writing, this course also explores the interconnectedness of specifications with other elements within contract documents. Tailored for engineers, architects, and technicians engaged in project specification preparation, it is also highly recommended for all design and supervisory personnel involved in shaping project specifications.

Description.
Major subject matter topics include (a) language of specifications/written communication; (b) organization and format of specifications; (c) sources of technical information; (d) procedures, techniques, and methods of specification development; (e) guide specifications and project developed specifications; (f) contract clauses and contract interpretation; (g) relationship of contract drawings to specifications; (h) automated specification methods; and (i) regulatory and ethical considerations.

Pre-Course Assignment. Students must Review Chapters 1-3 of the SpecsIntact eLearning Modules before attending the class (https://www.wbdg.org/dod/specsintact/elearning). See attached for the Pre-Course Assignment Supplemental Information to support the completion of this assignment.

Prerequisites.
Nominees must be assigned (a) Occupational Series: 0800; (b) Grade: GS-09 through GS-13. Students should have current or projected assignments related to project specifications.

Statistical Methods in Hydrology

Control Number: **58** Length: 36 Hours

Purpose.
This course is designed for participants to become knowledgeable in the application of statistical methods used in the analysis of flood damage reduction, environmental, and water supply systems. Methods include advanced theory of frequency analysis, distribution fitting and testing, monte carlo simulation, stochastic streamflow generation, univariate and multivariate regression analysis, and regional analysis.

Description.
Topics covered include (a) distribution fitting and testing; (b) mixed population frequency analysis; (c) regulated flood frequency analysis; (d) regional frequency analysis; (e) Monte Carlo Simulation for risk analysis (f) application of univariate and multivariate regression methods for regional analysis; and (g) time-series analysis and stochastic streamflow generation. Students will perform hands-on workshops using HEC-SSP, HEC-Neptune, and the R programming language.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0800, 1300, and 1500; (b) Grade: GS-09 or above. Students must have had a college-level probability and statistics course to fully succeed.

Steady Flow with HEC-River Analysis System

Control Number: **114** Length: 36 Hours

Purpose.
The objective of the course is to enable the participants to perform water surface profile computations, for steady flow hydraulic analyses, using computer program HEC-RAS in a sound and effective manner.

Description.
This course teaches the concepts of open channel flow concepts, hydraulic model data requirements, HEC-RAS input requirements, laying out cross sections for 1D hydraulic modeling, application of bridge and culvert routines, calibration of a steady flow hydraulics model, floodway determination, an overview of Optional capabilities, and output analysis. The HEC-RAS software will be included in lectures and workshops. Participants have an opportunity to prepare input and analyze output during workshops.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0800 and 1300; (b) Grade: GS-05 or above. Nominees must be engineers who perform professional work in the fields of hydraulics and hydrology. Nominees should have one or more years of experience in these areas. Students should have had at least one (1) college level class in open channel Hydraulics. It is required that course participants be in positions or anticipate being in positions in the next year or two where they will be involved in water surface profile calculations.

Strategic Stakeholder Engagement

Control Number: **224** Length: 24 Hours
CEUs: 2.2 PDHs: 20

Purpose.
What is Strategic Stakeholder Engagement (SSE) and why it is important to USACE as a reimbursable government agency?
In this course students will identify stakeholder needs, conduct environmental analysis, identify stakeholder opportunities which align with USACE capabilities, determine the types of USACE assistance the stakeholder most needs, and create an account plan.

Description.
This course helps students create account plans that help build and maintain productive partnerships. The course content focuses on stakeholders, their needs, and ways USACE capabilities can be used to help them meet their metrics for success. First, students identify the stakeholders to be considered. Students then research stakeholder mission statements, goals and metrics to understand their intended direction. Using environmental analysis, future needs are anticipated, and students identify potential opportunities for USACE to help them succeed. This is followed by SWOT (strengths, weaknesses, opportunities, threats) analysis to better clarify the best intersection between the stakeholder needs and USACE capabilities. From there, students create an account plan to knit together the stakeholders' needs with USACE capabilities. This includes using the 5Ps of marketing and IFBP value proposition analysis. Finally, the students formulate the outline and content of an Account Plan.?

Prerequisites.
Prospective students are generally those who are in direct contact with stakeholders on a consistent basis. Specifically, this includes USACE Outreach Coordinators, Account Managers, Project Managers and Program Managers. Sometimes this also includes key project delivery team members (for example technical leads, subject matter experts, etc.) who have frequent contact with stakeholders, end-users and project partners. Students should be journey-level or above and have had experience working with outside stakeholders and end-users. A mandatory pre-arrival survey is required.?

Streambank Erosion and Protection

Control Number: **285** Length: 36 Hours
CEUs: 3.3 PDHs: 33

Purpose.
This course provides guidance to enable personnel involved in streambank erosion and protection projects to prepare for, organize, and conduct a field analysis of a streambank erosion problem; and design appropriate channel stabilization measures, including develop of alternatives and selection of the most appropriate designs.

Description.
This course provides project managers, planners, technicians, engineers, biologists, designers, regulators, and personnel involved in Section 14, 1135, and 206 projects the latest practical knowledge and design criteria for streambank protection and associated erosion control methods. Through a series of interactive lectures and field exercises the student will be introduced to the following subjects: fundamentals of fluvial geomorphology and river mechanics; streambed degradation protection measures; geotechnical consideration and design; environmental considerations when designing protection works; overview and design criteria of streambank protection measures (e.g., trench fill and windrow revetments, dikes, retards, longitudinal peaked stone toe, bendway weirs, and multiple biotechnical methods, among others); methods to analyze and select appropriate protection methods (or combination of methods); erosion control in dynamic environments; construction, monitoring, maintenance, and repair of streambank protection projects; and how to conduct reconnaissance of a streambank erosion problem. In conducting field exercises, students are taught how to plan for a stream reconnaissance, gather gage data and perform aerial photographic analyses, determine personal protection equipment and safety requirements, and how to gather and measure stream data. In this course, student teams are required to analyze, prepare, and present a streambank erosion problem, develop several alternative bank protection treatments, choose the most effective (or combination) treatment while taking into consideration the expected engineering performance, environmental ramifications, and cost effectiveness of the project.

Prerequisites.
The target audience for this course is employees in (a) Occupational Series: 0000-0100, 0400, 0800, 1300, and (b) Grade GS-05 or above, but the course is open to employees in any grade or occupational series. SPECIAL INSTRUCTIONS: An important part of the class is a half-day field trip to investigate a local stream. Students will be required to climb streambanks and wade approximately one mile of stream over a period of

3 to 4 hours. ERDC-WES will provide needed field equipment.
Students should bring appropriate field clothes, a windbreaker, and rain gear.

Strength and Stability of Constructed Slopes

Control Number: **262** Length: 36 Hours
CEUs: 3.0 PDHs: 30

Purpose.
The purpose of Strength and Stability of Constructed Slopes is to familiarize students with site characterization and computational methods to evaluate the stability of slopes.

Description.
The course covers laboratory and insitu methods to evaluate soil strength with emphasis on applications to slope stability. Both hand and numerical methods to evaluate the stability of slopes are covered. The course covers the influence of tension cracks, surcharge loading, transient and steady state seepage, rapid drawdown, soil reinforcement, pseudo-static seismic loads, and risk analyses. The course also includes simple examples using finite element software.

Prerequisites.
Participants must download and install GeoStudio (2020.4 or higher). Non-USACE students may obtain a temporary license by following directions from SRI.

Nominees must be assigned to:

(a) Occupational Series: Selected 0810 (Geotechnical) or 1350 (Geology)

(b) Grade: GS-07 or above

Students must have a geotechnical educational background or at least 1 year of job experience in geotechnical evaluation.

Completion of an undergraduate course in soil mechanics is required.

Sustainable Military Building Design and Construct

Control Number: **244** Length: 28 Hours
CEUs: 2.4 PDHs: 24 LUs: 24

Purpose.
This course provides practical, hands-on training in this rapidly emerging and dynamic body of sustainability requirements that applies to all military construction. Trainees will gain understanding of the High Performance and Sustainable Buildings requirements (UFC 1-200-02)and become familiar with the Leadership in Energy and Environmental Design - Building Design + Construction(LEED-BD+C) project rating tool. This course will help develop a skill set of procedures trainees can employ to successfully implement sustainable design and third party certification in projects as well as defining the documentation requirements to demonstrate compliance with Federal Guiding Principles.

Description.
This course covers the following topics:
Federal mandates, Army Sustainable Design and Development (SDD) Policy, Air Force Policy. In-depth training on UFC 1-200-02 High Performance and Sustainable Buildings (HPSB) Requirements. Low Impact Development (LID). Incorporating HPSB in planning charettes, project delivery, contract documents and construction activities. Life-cycle cost analysis (LCCA), commissioning, energy analysis and strategies, sustainable technologies, water conservation, waste diversion and master planning. ASHRAE Standards 90.1 & 189.1, HPSB 'Guiding Principles' Checklist, LEED, Resiliency.

Prerequisites.
Attendees should be assigned as USACE architects, engineers, military project managers, cost engineers or construction field engineers. It is also applicable to Army and Air Force Installation master planners, environmental managers, energy managers and engineering staff. Nominees should have basic familiarity with USACE military design and construction process at the GS-09- 13 level.

The Complete RCRA Course (Hazardous Waste Generation Management and Corrective Action)

Control Number: **226** Length: 24 Hours
CEUs: 2.2 PDHs: 22

Purpose.
This course covers the full lifecycle of RCRA hazardous waste. It begins with generation and classification of hazardous waste, explains management standards as specified in Federal regulations (generator, transporter, and treatment, storage, and disposal facility standards), and the corrective action process as it applies to releases of hazardous waste and hazardous constituents.

Description.
The course focuses on Federal RCRA hazardous waste requirements as found in Title 40 of the Code of Federal Regulations. Topics covered include identifying solid and hazardous wastes, determining applicable generator category, generator standards including conditions for exemptions from permit requirements, land disposal restriction treatment standards, use of the hazardous waste manifest, and land disposal restrictions treatment standards. Additional topics include standards applicable to the facilities that receive hazardous waste for treatment, storage, or disposal; special regulations for managing recyclable waste; used oil; waste military munitions; universal waste; underground storage tanks; permit options; and the process for conducting corrective action. Phases of corrective action covered include identification of solid waste management units and area of concern, RCRA facility assessments, interim stabilization measures, the RCRA facility investigations, corrective measures studies, and corrective measures implementation. Special waste management options for remediation waste, such as corrective action management units, staging piles, and temporary units are also addressed.

Prerequisites.
There is no prerequisite to attending this course, however, the course is targeted at persons in environmental positions. Relevant job series include: 0800, 0809, 0810, 0819, 0820, 0025, 0026, 0028, 0029, 0401, 1301, 1350, 1306, and 1320. The training intended for persons with any of the following job responsibilities: hazardous waste (HW) determination, HW management, oversight of HW or hazardous constituents; applying for RCRA permits; and/or managing underground storage tanks.

Topographic Surveying Basics

Control Number: **295** Length: 36 Hours
CEUs: 3.0 PDHs: 30

Purpose.
This course provides surveyors, planners, designers, and CAD/GIS developers with a fundamental knowledge of basic conventional field surveying procedures and with the computational techniques needed to support civil works, military construction, and environmental restoration projects. It also supports USACE hydrographic, topographic, and real estate surveying activities. This course covers all basic surveying procedures typically required to support Corps design, construction, operations, and maintenance activities and supplements surveying knowledge required for A-E quality assurance.

Description.
Specific topics covered in the course include surveying mathematical concepts; the rectangular coordinate system; angle and distance measurement; traverse surveys in support of engineering design and field construction stake out; traverse computations and balancing methods; field taping; trigonometric and differential leveling field procedures and note reduction; state plane coordinate systems; topographic surveying techniques; map accuracies; electronic total stations; land boundary surveys; and error analysis.

Prerequisites.
Nominees should be assigned (a) selected positions in occupational series 1300 (Surveyors), 0800 (Engineers), 1100 (A-E Contract Administrators), 0150 (Geographers), 0400 (park rangers), and planners, designers, construction inspectors, and CAD/GIS developers involved with civil works, construction, and environmental restoration projects who require a basic understanding of survey procedures and computational techniques. Waivers will be considered. (b) Grade: GS-03 or above; (c) A general working knowledge of high-school-level algebra and trigonometry. and (d) A general working knowledge of scientific calculators for computing trigonometric functions and for converting degree-minute-second angular measurements to decimal equivalents.

Unsteady Flow using HEC-River Analysis System

Control Number: **188** Length: 36 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course focuses on the use of the computer program HEC-RAS for the analysis of one-dimensional gradually varied unsteady open channel flow. The role and application of this model in Corps flood studies is presented in lectures, workshops and examples.

Description.
Primary coverage is on one-dimensional open channel hydraulics. This covers the theory, applicability, limitations, and data requirements of the HEC-RAS unsteady flow program. Additional topics include: modeling bridges and culverts, inline and lateral hydraulic structures, storage areas, model calibration, model stability and accuracy, trouble shooting, and advanced features for Unsteady Flow Modeling (mixed flow regime, pump stations, dam and levee breaching). Case studies and computer workshops are used to illustrate model usage.

Prerequisites.
Nominees must be assigned (a) Occupational Series: Selected 0810 and 1300; (b) Grade: GS-07 or above. Nominees must have a good background in open channel hydraulics and familiarity with HEC-RAS. Basic HEC-RAS input and output data requirements will not be covered in this class. It will be assumed that you already know how to use the software for performing a steady flow analysis. Familiarity with the partial differential equations of fluid motion and numerical solution techniques is desirable. Participants should be in positions requiring analysis of complex hydraulic problems. Students should have at least one (1) college level class in open channel hydraulics.

USACE 30 HR Construction Safety

Control Number: **215** Length: 36 Hours
CEUs: 3.1 PDHs: 31

Purpose.
This course is designed to provide the USACE equivalent of the OSHA 30-hour Construction Safety Certification for field personnel that have construction safety and health responsibilities. This course is designed to teach the basics of hazard recognition, control of hazards and risk management principles. The course provides information relative to the Corps Safety and Health Requirements Manual, EM 385-1-1 and pertinent Occupational Safety and Health Administration (OSHA) construction standards.
This course satisfies the CDSO training requirements per EM 385-1-1,.01.A.19.

Description.
This course will cover through lectures, discussions, practical exercises, group activities, and case studies, the major aspects of the Corps of Engineers construction safety and health program. Using extensive construction safety backgrounds, instructor staff will discuss and examine prudent application of EM 385-1-1 to construction field settings and problem areas. Safety topics covered during these sessions will include the following: (a) Introduction to OSHA; (b) Managing Safety and Health; (c) Signs, Signals and Barricades; (d) Personal Protective Equipment; (e) Fall Protection; (f) Struck-by Hazards; (g) Caught-in or between Hazards; (h) Electrical Hazards; (i) Health Hazards; (j) Welding/Cutting Hazards; (k) Fire Protection; (l) Concreate and Masonry Hazards; (m) Load Handling Equipment Hazards; (n) Powered Industrial Trucks Hazards; (o) Material Handling Hazards; (p) Vehicle, Machinery, and Equipment Hazards; (q) Steel Erection Hazards; (r) Confine Space Hazards; (s) Excavation Hazards; (t) Stairway and Ladder Hazards; (u) Scaffold Hazards; (v) Tool Hazards; and (w) Demolition Hazards. While students will gain an overall understanding of the various elements that comprise a successful construction safety program and be provided current state-of-art safety technology and methodology as it relates to the Corps of Engineers, this course focuses on the USACE application of the EM 385-1-1. Upon successful completion, students will receive an OSHA 30-hour construction safety certification.The objective of the course is to prepare supervisors and leaders to integrate Supervisor Engagement and Employee Participation, Accident Investigation and Reporting, Training and Promotion, Inspections and Assessments, Risk Management, and Health Promotion and Readiness into the workplace. Some of the specific topics covered in this course will include: (a) Introduction to OSHA; b) SOH Programs; c) Program

Documents; d) Risk Management; e) Mishap Reporting; f) Fall Hazards; g)Electrical Hazards; h) Struck-by Hazards; (i) Caught in/Between Hazards; (j) Personal Protective Equipment; (k) Crane Hazards; (l) Scaffold Hazards;(m) Stairway/Ladder Hazards; n) Tool Hazards; o) Confined Space Hazards; p) Walking Working Hazards; and q) Health Hazards.

Prerequisites.
Attendance is open to all Department of Defense and other Federal agency employees who have a need for construction safety and health information or responsibility for meeting and enforcing construction-related safety requirements. It is recommended that field construction personnel repeat attendance to this course on a five-year cycle.
Each student must arrive with a laptop with appropriate CAC credentials for the USACE network in order to access the required Blackboard resources.
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USACE 30 HR General Industry Course

Control Number: **63** Length: 36 Hours

Purpose.
This is a five day course offered through the United States Army Corp of Engineer (USACE) Proponent Sponsor Engineer Corp Training (PROSPECT). The course is designed to provide hazard recognition for field personnel who perform USACE facility operation or maintenance or oversee contractors doing such work. The course provides information relative to the Corps Safety and Health Requirements Manual, EM 385-1-1 and pertinent Occupational Safety and Health Administration (OSHA) General Industry Standards.

Description.
The course will cover through lectures, discussions, practical exercises and case studies, the major aspects of the Corps of Engineers safety and health program following the OSHA 30-hour general industry certification course template. Topics include: Managing Safety & Occupational Health Programs, Accident Reporting, Accident Prevention Plans, Workplace Assessments/Hazard Analysis, Walking/Working Surfaces, Fall Protection, Lockout/Tagout (LOTO) Procedures, Electrical Safety, Cranes & Rigging, Hand/Power Tools, Materials Handling, Welding/Cutting/Brazing Operations, Personal Protective Equipment, Medical Surveillance, Hearing Conservation Program, Respiratory Protection, Personal Protective Equipment, Hazard Communication Program, Machine Guarding, Permit Required Confined Spaces, and Class Project. Students that successfully complete the course will receive a 30 Hour General Industry Card.

Prerequisites.
Students should be from any occupation involved in performing, overseeing, or managing operation and/ or maintenance work at facilities, including maintenance units, shops, powerhouses, locks and dams, and other indutrial activities.

USACE Small Unmanned Aircraft System (sUAS) Qualification Course

Control Number: **93** Length: 24 Hours

Purpose.
This course is the USACE certification tool for Public Aircraft Operators to meet Federal Aviation Administration (FAA) and DoD requirements for the safe and effective use of Small Unmanned Aircraft in the National Airspace System.

Description.
The USACE Aviation Small Unmanned Aircraft Systems Basic Course is 32 hours of academic and flight instruction to qualify students as Small Unmanned Aircraft Systems (SUAS) operators. Course lessons cover topics in 14 CFR Part 107, AR 95-1and EC 95-1-1 in addition to Federal, Department of Defense (DoD), and Army cyber security requirements. This certification is valid for Public Aircraft Operations (PAO) only. It may not be used to satisfy the certification requirements of 14 CFR Part 107 when flying in a capacity that does not meet the criteria of a PAO.

Prerequisites.
1) Nominees must have an occupational requirement as a certified USACE SUAS operator within their organization. In addition, nominees are encouraged to reach out to their organization's UAS Master Trainer for endorsement and guidance on attending the UAS Basic Course.
2) Students must establish a Joint Engineer Common Operating Picture (JECOP) account and get an approved permission elevation request for access to Operator's Tool for Information Collection (OPTIC) through the JECOP and USACE Common Operating Picture (uCOP) permissions system, called JECOP and uCOP Permission Services (JUPS), prior to starting the course.
3) Students must submit their permission elevation request at least one week prior to the course start date. If students encounter any issues, please contact the Aviation Program Office (APO) Optic Liaison, Mr. Paul Van Loan, at paul.a.vanloan@usace.army.mil

VALUE ENGINEERING

Control Number: **110** Length: 36 Hours
CEUs: 3.5 PDHs: 35 LUs: 35

Purpose.
This course introduces participants of all professions to the concept of value-based thinking and the function-oriented decision-making process to encourage innovation and improve quality of projects, products, processes, services, and organizations. Students will learn concepts, principles, and skills necessary to enable them to perform effectively as a value study team member; to recognize value-based opportunities; and to identify the benefits of utilizing the Value Methodology (VM).

Description.
Through lectures and practical hands-on group exercises this course introduces participants to value concepts and provides an opportunity to gain experience with the workshop phases of the VM job plan. Students will learn about the value formula and how it is applied to projects, programs, and processes. This course is beneficial to all disciplines. It is a requirement for USACE Value Program Managers to become fully qualified and obtain Value Officer authority. This is a Value Methodology Fundamentals 1 (VMF1) course, led by licensed instructors and approved by SAVE® International. VMF1 is a mandatory preparatory education step toward certification as a Value Methodology Associate (VMA) and Certified Value Specialist (CVS®). Participants who complete this course are eligible to take the VMA exam administered by SAVE® International.

Prerequisites.
The Office of Management and Budget (OMB) requires federal agencies to train all employees in Value Engineering (VE) management, processes, and best practices. Highest priority should be given to those who are required to complete this course within one year of being selected by District/Division Commanders as a designated Value Program Manager. Further priority should be given to those with grades GS-11 and above. This course is open to all agencies.

Visitor Assistance Management & Policy

Control Number: **324** Length: 28 Hours

Purpose.
This course provides an overview of the Corps of Engineers Visitor Assistance Program to promote consistency in Visitor Assistance policy application and explore alternative management techniques and practical applications. Ensuring continuity in the Visitor Assistance program being managed by Senior Management personnel at the Division, District, Area Office and Project level.

Description.
Topics covered in this course include the policy status and direction of the Visitor Assistance Program, Title 18, Title 36, Security/Law Enforcement issues, tactical communications, proper uniform wear, succession planning, community involvement, alternative management techniques, Visitor Assistance "Hot Topics"/What's New, and legal liabilities.

Prerequisites.
Employees who have attended the Visitor Assistance Management (Course #324)&Policy or NRM Visitor Assistance (Course #147) Courses within the past 5 years should not schedule this course. Attendees should be Visitor Assistance Program Managers, Operations Managers, Park Managers, Supervisory/Chief Rangers at the Division, District, Area and Project level who plan to provide oversight and manage the Visitor Assistance Program. Park Rangers/NRM Specialist, GS-9, may also attend, but they will be given a lower priority. It is recommended that Corps Security Specialists (GS-0080), Corps military personnel serving in a security capacity and Operational Project Managers attend the course to gain a better understanding of the Corps' Visitor Assistance Program.

VISITOR ASSISTANCE NRM

Control Number: **147** Length: 40 Hours
CEUs: 3.2 PDHs: 32

Purpose.
This course is designed to training students with the knowledge and skills necessary to function as a member of the USACE Visitor Assistance Ranger Staff. It provides a basic understanding of laws, regulations, rules, and policies pertaining to Visitor Assistance of Natural Resource Management (NRM) projects and the basic principles of unarmed self-defense. This course, in combination with other required training, satisfies the minimum requirements for Authorization of Citation Authority and is designed to develop an understanding of the formulation, purpose, and limitations of the Corps of Engineers Visitor Assistance Program and to prepare trainees to handle the special responsibilities required in performing their official duties. This training is supplemented by detailed Division/District instruction of citation authority implementation procedures. To obtain citation authority, the graduate must complete the required Basic Visitor Assistance Training Curriculum (ER/EP 1130-2-550. Chapter 6). This course provides basic Pepper Spray and unarmed self-defense training to eligible employees. Citation authority will only be granted to qualifying individuals as stipulated in the prerequisites paragraph.

Description.
This course is taught in-person with 15 lessons and includes, lectures, case studies, scenario role play, physical activities, and live spraying of oleoresin capsicum spray. Topics covered in this course include History and Development of the USACE Ranger Program, an Overview of the USACE Visitor Assistance Program, Rules and Regulations Governing the Visitor Assistance Program, Title 18 and Title 36 Applicability to the Ranger Program, USACE Project Demographics, Ranger Image and the Proper Wear of the Ranger Uniform, an Overview of the Federal Court System and Federal Tort Claims, Tactical Communications, Defensive Tactics, OC Pepper Spray to include Oleoresin Capsicum Spray Certification, Security and Law Enforcement in USACE Projects, And Personal Protection Techniques.

Prerequisites.
Nominees MUST be assigned (a) Occupational Series: GS-0023, 0025, or special GS-400 series such as biologist. (b) Grade: GS-04 or above, seasonal and temporary employees included (employees of lower grade who are or will be performing similar duties may attend at the discretion of their manager/training coordinator). Nominees must be currently serving or have an anticipated assignment as a Corps Park Ranger or be in a directly related job such as a forester, a wildlife

and fisheries manager, biologist, or natural resources specialist. Trainees should have less than 4 years of experience in the Visitor Assistance Program, as per ER 1130-2-550. Nominees must be approved by the Natural Resources Functional Manager at the District or Division level and approval granted to attend by the PROSPECT Visitor Assistance Lead Instructor. Individuals receiving citation authority to enforce CFR Title 36 must be employed under the USACE Natural Resources Management Program and MUST have principle duties including visitor assistance, recreation and natural resource management. The individual must need citation authority to perform official duties in the most efficient manner and must be certified by the District Commander as per ER 1130-2-550, Chapter 6. Individual must have the proper aptitude, temperament, personality, experience, and ability to exercise citation authority properly as determined by management.

Water and the Watershed

Control Number: **164** Length: 36 Hours

CEUs: 2.7 PDHs: 27

Purpose.

This course provides participants with an understanding of the history of Corps watershed policy and regulation, the conceptual, technical, and institutional tools available for watershed planning and management and the physical nature 1and role of water in the watershed.

Description.

This course targets students who work on civil works project delivery teams for watershed studies, multi-purpose studies, masterplans, special area management plans and related activities. It aims to impart a broad understanding of the institutional policies, science and available tools for watershed management and planning. The course covers the occurrence, movement, storage, and control of water (surface and ground water hydrology); the natural development of the landscape (geomorphology); the concept of the watershed as a bioregion and ecosystem; the development of the water resources for multiple purposes; and the social, cultural and institutional elements of watershed management. Historical and current regulations and policies affecting the Corps' approach to watershed planning and management are covered. Conceptual tools discussed include adaptive management and collaborative management with stakeholders to resolve water conflicts. The course will discuss the many active local organizations and federal agencies with a stake in the watershed and the role of the Corps in watershed initiatives and partnerships.

Prerequisites.

Nominees normally are assigned to: (a) Occupational Series: Selected 800 and 400 series, 028, 819, 184, 101, 401, and 1301, (b) Grade GS-09 and above. Nominees should be planners/study managers, project managers, hydrologists, hydraulic or environmental engineers, biologists, economists, sociologists, ecologists, water control managers, etc.

Welding - Quality Verification

Control Number: **116** Length: 36 Hours
CEUs: 2.9 PDHs: 29

Purpose.
This course teaches the participant to interpret the various methods and techniques employed in weldments and assuring the quality of welds.

Description.
Through lectures, conferences, and practical exercise sessions, students are able to identify aspects of welding safety and precautions, welding symbols, processes and quality assurance problems, roof decking welding, codes, procedures, and operator qualification, filler metals, workmanship, visual inspection, dye penetrant, magnetic particles, radiographic and ultrasonic testing techniques and interpretation, and destructive testing. Quality assurance in welding is emphasized.

Prerequisites.
Nominees must be assigned and/or have all of the following: (a) Occupational Series: 0801, 0802, 0809, 0810, and selected 0800; (b) Grade: GS-05 and above; or equivalent (c) other: Students should have current or projected assignments with welding quality assurance responsibilities. It is recommended that they have previously completed the General Construction - Quality Verification course and must not have attended this or a similar course within the past 5 years.

Welding Design

Control Number: **162** Length: 36 Hours
CEUs: 3.4 PDHs: 33

Purpose.
The course teaches the participant, with a limited knowledge of welding or no background in welding, to create and draft replacement designs, to redesign or reinforce welding designs, and to communicate this information to field personnel.

Description.
The course covers design considerations and proper communication of welding processes, joint designs, weldability of metals, design methods, weld size determinations, weld costs estimating, design formulas, failure analysis of past design problems, and economics of welding.

Prerequisites.
Nominees must be assigned and/or meet all of the following: (a) Occupational Series: Selected 0800 and 1600; (b) Grade: GS-07 or above or equivalent; (c) have current or projected assignments requiring welding design and inspection responsibilities.

Wetland Stream Ecology BASIC

Control Number: **192** Length: 32 Hours
CEUs: 2.6 PDHs: 26

Purpose.
Through this course, students will demonstrate an understanding of fundamental stream ecology principles and how they apply to USACE decisions and processes. After completing this course, students will be able to describe the structure, function, and dynamic processes of stream ecosystems, as well as how human activities impact these systems and the effects those impacts have on the critical services these ecosystems provide. This course will provide students with the foundational knowledge through both field and classroom exercises to apply stream ecology principles to planning, permitting, and management of water resources projects.

Description.
Fundamentals of Stream Ecology will provide students with foundational knowledge and skills relevant to USACE missions. The course includes components in both field and classroom settings to learn about the following topics: (1) The importance of stream ecology regarding USACE requirements including those pertaining to planning, permitting, and management of water resources projects. (2) The structure, function, and dynamic processes of stream ecosystems focusing on the abiotic and biotic components across temporal and spatial scales of a stream. (3) The effects of anthropogenic activities on the ecological integrity of stream ecosystems.

Prerequisites.
This course is targeted towards nominees from engineering, construction, regulatory, planning, natural resources, program and project management disciplines within the Corps of Engineers and other Federal Agencies. Occupational Series: Open to all including navigation, flood control and the environment. Due to the physical requirements of the field work integral to the course, potential students should be able to safely wade in flowing streams and rivers and negotiate rocks and large woody debris as the class traverses a range of waterbodies in field exercises.

Working Diver

Control Number: **35** Length: 114 Hours
CEUs: 8.5 PDHs: 85

Purpose.
This course provides Corps of Engineers employees who are assigned as divers, diver supervisors, and/or agency diving coordinators with the necessary skills, knowledges, and abilities to safely perform their assigned underwater tasks. This training will provide students with state-of-art technology and methodology to safely perform underwater diving operations and effectively manage diving contingencies.

Description.
Students will become familiar with and perform underwater exercises with state-of-art diving systems including self-contained underwater breathing apparatus (SCUBA) and Surface Supplied Air equipment. This course consists of classroom presentations, training pool exercises, open water activities, and practical operations. Sessions pertinent to underwater diving operations will include, but are not limited to, the following topics and activities: (a) regulatory requirements, (b) dive planning, (c) inspections, (d) deep dive, (e) identification and use of Activity Hazard Analysis, (f) dive preparation, (g) diving physics/gas laws, (h) diving physiology, (i) diving psychology and types of stress, (j) diving medicine, (k) SCUBA equipment use and operations, (l) Surface Supplied Air equipment, (m) decompression actions, equipment, principles and associated types of tables, (n) diving accident management, and (o) dive operations.

Prerequisites.
(a) Students for this course must have a current or projected assignment to a position requiring underwater diving skills and prior to attending this training must hold a SCUBA training certificate or equivalent from a nationally recognized diver training organization, e.g., PADI, NAUI, etc. Failure to provide evidence of diver certification will be cause for rejection; (b) Nominees must successfully complete a diving medical examination as detailed in ER 385-1-86 within the past 11 months and provide a copy of the completed medical form to the training agent at least two weeks prior to the class start date; (c) proof of the last four government dives within the last 11 months; and (d) students must participate in all lectures, written and practical exercises, and score at least 70 percent on the comprehensive post-course examination, two diving practical examinations, and quizzes administered during the course to receive the diver certification. Exceptions or deviations to any of these prerequisites shall be approved by the HQUSACE Safety and Occupational Health Office.