Highway Materials Engineering Course (HMEC) Announcement

The Federal Highway Administration (FHWA) is sponsoring the newly revised presentation of the annual Highway Materials Engineering Course (HMEC). The curriculum was developed by national experts in the various materials areas, under the guidance of State Department of Transportation (DOT) materials engineers and the FHWA materials specialists. The purpose of this announcement is to describe the program and set forth eligibility requirements.

Participants

Typical participant background is described by one of the following:

- Personnel who joined their agency with a bachelor's degree in civil engineering, have several years of experience with the agency (particularly in construction or materials), and have received their professional engineer license
- Personnel who have advanced through the technician ranks, have 10-15 years' experience with highway construction materials, and are targeted by their agency for further professional advancement

In either case, the participants typically have expertise in at least one area of materials, such as asphalt mixture, but require more knowledge of other material types. Participants' experience with materials acceptance will vary greatly; some of the participants will have had a college course or limited work experience, while others will have had daily exposure.

Prerequisites

A prospective participant must have a good academic background in mathematics and science.

Course Description

The Highway Materials Engineering Course is a multi-week course that comprises eight separate technical content modules, plus one orientation session. Together, the modules present detailed information on highway construction materials and provide learning experiences that typically are not addressed in collegiate civil engineering programs. Modules in this course include one orientation session and:

- Quality Assurance
- Soils and Foundations
- Steel, Welding, and Coatings
- Aggregates for Transportation Construction Projects
- Mechanistic-Empirical Pavement Design Guide
- Asphalt Materials and Paving Mixtures
- Portland Cement Concrete
- Evaluating Recycled Materials for Beneficial Uses in Transportation Construction

The content of the modules is delivered to participants through diverse platforms, including:

- Instructor-led, classroom-based training (ILT)
- Web-based training (WBT)
- Independent study (IS)
- Web-conference training (WCT)
- Laboratory or field experiences (LAB)

Course Objectives

Upon completion of the course, the participants will be able to:

- Select the most appropriate materials for highway construction based on material characteristics, engineering properties, design requirements, cost, availability, and expected service life.
- Utilize quality assurance principles in order to make effective material acceptance decisions that conform to accepted plans and specifications.
- Analyze and interpret field and laboratory test results to identify and address issues with materials.
- Evaluate the technical aspects of the specifications to determine whether best practices in the selection, placement, sampling, testing, and inspection of materials are being specified.
- Identify promising new technologies, best practices for implementation, and methods for promoting the transfer of knowledge associated with the selection, placement, sampling, testing, and inspection of innovative materials.
- Evaluate innovative materials and products and select information about the innovation that is required for specification development.

Eligibility

First priority will be given to employees of State, local and Federal agencies involved in highway construction. However, industry and academia will also be considered.

Participants who successfully complete the course will be awarded a certificate for Professional Development Hours (PDH).

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