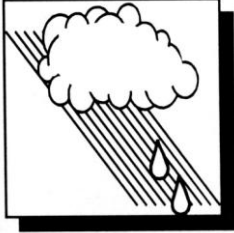


# NEW 2011 COURSE OFFERINGS

## NTTP COURSES



### **Acid-Forming Materials: Soils and Overburden**

This course provides participants with information to upgrade their technical skills and current thinking in the critical aspects of acid-forming materials geology/mineralogy and weathering, and its subsequent impacts on reclamation planning and mitigation of mine soils and plant systems. **Duration: 4 days (1 day for a field trip)**

#### **TOPICS COVERED**

---

Introduction and Objectives

Soil Eco-System

Glossary of Terms and References

Geology and Weathering

Acid Sulfate Soils and Soil Geochemistry

Root Growth and Root Zone

Soils and Overburden Sampling and Characterization

Reclamation Planning and AFM Prevention:  
Soil Substitution and Supplements

Acid- Forming Materials Mitigation: Neutralization and Lime  
Requirements

Field Trip

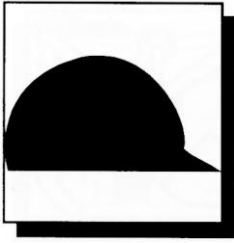
---

**Who Should Attend:** Permitting Specialists, Inspectors, and AML Specialists.

**Comments:** We recommend completion of the Acid-Forming Materials: Fundamentals and Applications course as a prerequisite. A basic understanding of chemistry is very helpful.

**Students need to bring the following to class:** Calculator.

**Field Exercise:** Steel-toed boots are required.



## SMCRA Principles and Field Procedures

This course provides training to recently hired field staff with responsibilities in inspection, technical review or AML inspections. It covers the basic principles and performance standards of the Surface Mining Control and Reclamation Act (SMCRA) including the investigative methods, technologies, tools and techniques for appropriate documentation of the mining and reclamation process. It includes evaluation of plans, problem identification, communications and compliance evaluations. The instruction integrates the importance of thorough review and understanding of the mining and reclamation permit or project plan, mining related impacts and inspection and documentation responsibilities. The instruction includes lecture, classroom and field exercises and field application practice of the techniques and tools. **Duration: 8 ½ days (3 field exercise days)**

### TOPICS COVERED

---

SMCRA Historical Perspectives  
Documentation / Documentation Technologies  
Map and Cross-Section Interpretation  
Hydrology  
Safety  
Communications and Writing  
Complaint Response  
Blasting  
Soil Materials and Handling  
Backfilling and Grading  
Resoiling & Revegetation  
Mine Plan and Project Review  
Site Characterization

#### **Field Procedures and Skills**

Map Interpretation  
Photography  
Pond Design Evaluation  
Measurement Tools and Techniques  
Channel Evaluation and Cross-Section Interpretation  
Water Testing and Sampling Procedures  
Stream Sampling and Flow Measurement Procedures  
Soil Measurement and Volume Calculations  
Soil Identification and Resoiling Verification  
Vegetation Evaluation Procedures  
Site Measurement and Distance Estimation Techniques

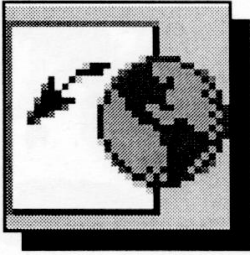
---

**Who Should Attend:** Inspectors, AML and Technical Field Personnel who have less than 18 months experience with surface mining.

**Students need to bring the following to class:** Calculator.

**Field Exercise:** Hard hat and steel toed boots required.

## TIPS COURSES



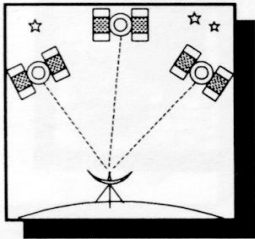
### **CAD 400: Bridging the CAD and GIS Gap in the SMCRA Workflow**

**Course Description:** The purpose of this course is to assist personnel in integrating both CAD and GIS processes into SMCRA workflows. Students will review the basic foundation of GIS and CAD, identify similarities and differences, update and maintain permit data, manipulate spatial data, and database connectivity. Exercises will include use of Title IV and V data to show mechanisms of interoperability between CAD and GIS.

**Topics Covered:** Building the Foundation for CAD and GIS; Similarities and Differences in CAD and GIS; Direct Read Capabilities between ArcGIS and CAD; Updating/Maintaining Permit Data, Manipulating GIS Data in CAD, and, Database Management.

**Prerequisites:** CAD 200: AutoCAD Map 3D for Permitting and Reclamation and/or Introduction to ArcGIS for Mining and Reclamation

---



### **High Accuracy GPS for GIS**

**Course Description:** This workshop features high accuracy collection and analysis of spatial and attribute data for GIS using the Trimble Pathfinder ProXRT hardware, and TerraSync and Pathfinder Office software. Participants will perform extensive hands-on use of the GPS hardware and software both in field and office settings. Participation will serve as a prerequisite for use of the OSM Trimble

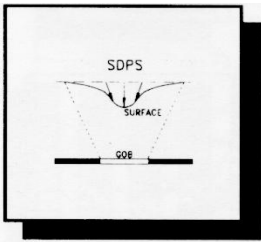
Pathfinder ProXRT system.

**Topics Covered:** GPS System in 2010; GPS Basics Refresher; Factors Affecting GPS Accuracy ; Mobile Computing Project Planning; ProXRT Hardware; Trimble Nomad Data Collector; TerraSync Software Configuration and Use; Data Collection; and, Data Processing Using Pathfinder Office Software.

**Prerequisites:** Knowledge of and use of GPS hardware and software for GIS data collection. Specific experience with Trimble TerraSync and PFOffice software is highly recommended. Knowledge of ArcGIS or ArcView software is also recommended.

**Targeted Audience:** GIS practitioners experienced with GPS data collection who have a need to collect high-accuracy GPS data for georeferencing, precision navigation, and mapping of minesite or AML features with a small spatial footprint, elevation mapping of geologic units such as coalbeds, or water elevations in hydrologic structures.

---

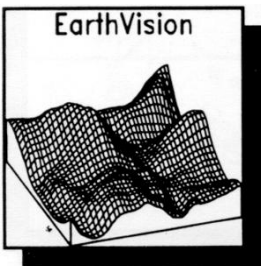


## HEC-RAS

**Course Description:** This course provides an overview of HEC-RAS modeling capabilities and shows each attendee how to use the model as a permitting/evaluation tool in flooding investigations. The course covers the most common uses of HEC-RAS such as water surface profiles, floodplain delineation, and the effects of bridges, and culverts in the floodplain. The hands on exercises allow participants to enter/edit flow and geometric data, perform flow simulations, develop water surface profiles and generate reports and graphics.

**Prerequisites:** Undergraduate Degree (or equivalent experience), and basic computer skills are highly recommended.

---



## Introduction to EarthVision 2D and 3D Modeling

**Course Description:** An introduction to earthVision based on actual data from a pre-Law (SMCRA) acid mine drainage site in north-central Pennsylvania. The class uses 2D and 3D data and grids as components in building 3D structure and acid-base accounting property models. Class topics include: data import, visualization, and validation; data editing in 3D; building stratigraphic sequences; and constructing the final 3D volume model. The extraction of 2D maps and cross sections from the finished