

## Registration

Four ways to register: **PHONE FAX MAIL ONLINE**

Fees: Course fee is \$895 per course and includes workshop materials, breaks, and lunch both days.

**Attend both classes for only \$1595.00**

Please check location:

### Introduction to HEC-HMS

Myrtle Beach, SC July 20-21, 2010

### Introduction to HEC-RAS

Myrtle Beach, SC July 22-23, 2010

Name(s)/Title(s) \_\_\_\_\_

Department \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone/Fax \_\_\_\_\_

Email \_\_\_\_\_

Special Dietary Requirements \_\_\_\_\_

Cell # for Emergency Contact only \_\_\_\_\_

P.O. Number \_\_\_\_\_

Credit Card:  American Express  Mastercard  Visa

Credit Card Number \_\_\_\_\_ Expiration \_\_\_\_\_

Cardholder's Name \_\_\_\_\_

Cardholder's Signature \_\_\_\_\_

Make checks payable to  
**Water Resources  
Learning Center, Inc.**

3918 Prosperity Avenue  
Suite 305  
Fairfax, VA 22031  
703.289.9600 voice  
703.289.9622 fax  
info@waterlearning.org



3918 Prosperity Avenue  
Suite 305  
Fairfax, VA 22031

## CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT COURSES 1.4 CEUs/14 PDHs



RESOURCES LEARNING CENTER  
waterlearning.org

### UPCOMING COURSES IN MYRTLE BEACH, SC

**INTRODUCTION TO HEC-HMS  
(Hydrologic Modeling System)**  
July 20-21, 2010

 **INTRODUCTION TO HEC-RAS  
(River Analysis System)**  
July 22-23, 2010

[www.waterlearning.org](http://www.waterlearning.org)

**Other Courses/locations: Nashville, TN  
Design of Stormwater Management Systems**

To be removed from our in-house mailing list, please send a fax or email us.

**See Our Website For Online Training Programs!**

# Introduction to HEC-HMS

Two Day Course  
1.4 CEUs

Myrtle Beach, SC

July 20-21, 2010

## Course Description

HMS (Hydrologic Modeling System), is rapidly becoming one of the most widely accepted hydrology models for analyzing watersheds and designing detention ponds. This public domain software has been developed by the Corps of Engineers. This new course combines hydrologic theory with the application of the Corps of Engineers hydrologic software, HEC-HMS version 3.4. Attendees will learn basic rainfall-runoff processes, storage and channel routing techniques, HMS model setup and simulation. Applications include watershed modeling, channel routing and detention pond analysis. The course will also cover WIN-TR55 computer program. **All attendees must bring their own laptop computers to get the full benefits of the course.** 1.4 CEUs.

## Course Outline

- Introduction to HMS/Model Overview
- Hydrologic Theory
- Basic Model Setup and Simulation
- Watershed Example 1 – SCS Method
- Detention Design Theory
- Detention Pond Analysis Example 2
- Channel Routing Theory
- Channel Routing Example 3

## Benefits

- Learn Hydrologic Theory
- Learn HMS Model Setup and Simulation
- Learn how to analyze detention ponds
- Learn how to incorporate channel routing
- Understand Hydrology Methods

## Course Material

Attendees will receive a Course Workbook, and a hard copy of the HMS User Manual and HMS software.

*“Great overall presentation.”*

*Charles Cook, Cook Engineering Services*

*“Concepts covered were explained clearly and improved my understanding of HEC-HMS input requirements.”*

*TN, ENA*

*“Excellent for a range of personnel from design engineers to design managers.”*

*Don Higgins, Day & Zimmermann*

*“This was a very insightful instructional course. I foresee myself utilizing the skills I learned on a daily basis.”*

*Phillip King*

*“Very well presented – relaxed atmosphere –invited questions – excellent information.”*

*Elvin Aycock, Atlanta Engineering Services*

*“Brian really knows his stuff! I enjoyed his thorough presentation.”*

*David N. Battista, Lenard Engineering*

*“Learned a lot, very informative instructor.”*

*Bob Schuch, Boundaries, LLC*

# Introduction to HEC-RAS

Two Day Course  
1.4 CEUs

Myrtle Beach, SC

July 22-23, 2010

## Course Description

HEC-RAS (River Analysis System), developed by the Corps of Engineers, has become the standard model for hydraulic analysis and water surface profile calculations. This fast paced, two day course is intended to provide attendees with the basic modeling skills to quickly get them up and running with HEC-RAS. The course material includes theory and applications of the model. Applications include water surface profile calculations, culverts analysis, bridge studies, and advanced topics. Time will be provided at the end of each day to review any necessary course material and to keep attendees up to speed. **All attendees must bring their own laptop computers to get the full benefits of the course.** The course does not cover GEO-RAS. 1.4CEUs

## Course Outline

- Course Overview/Intro to Models
- Water Surface Profile Theory
- Application 1: Basic Model Setup and Simulation Water Surface Profiles
- Culvert Theory
- Application 2: Adding Culverts
- Hydraulics of Bridges Theory
- Application 3: Bridge Analysis
- Advanced Topics and Applications

## Benefits

- Understand the theoretical basis for water surface profile calculations.
- Acquire the skills to setup and run a HEC-RAS model.
- Understand the theory for culvert and bridge hydraulics.
- Learn analyze culverts and bridges using HEC-RAS.
- Learn the advanced capabilities of HEC-RAS.

## Course Material

Course materials include Course Workbook, RAS User Manuals and RAS software.

## HOTEL/COURSE LOCATION

Caravelle Resort  
6900 North Ocean Blvd.  
Myrtle Beach, SC 29572  
1-800-845-0893

Room Rate: \$72.00 - \$160.00  
Please mention Group Code 429301 or Water Resources

## Other Courses Coming Up:

**Design of Stormwater Management Systems**  
Nashville, TN  
June 24-25, 2010

## Who Should Attend?

Both workshops are intended for engineers, consultants, designers, planners and reviewers involved with hydrologic and/or hydraulic design and modeling or those responsible for policy related issues. Those involved in other areas of drainage who would like to obtain a better understanding of the design and analysis practices are also encouraged to attend. The course material is presented in a manner that will benefit individuals who are new to this field as well as those who would like to improve their existing skills.

## Water Resources Learning Center

The Water Resources Learning Center is a training organization dedicated to continuing education in the field of water resources. The organization offers courses in hydrology, hydraulics, stormwater management, watershed planning and management, software applications, drainage design, storm sewers, stream channels, NPDES & TMDL's, erosion and sediment control, etc. These highly “interactive” courses are designed for an adult learning environment for the professional and are taught throughout the United States and abroad. Courses are offered in both a “live” instructor lead environment and online (coming soon). **In-house training programs are also available to organizations. This may be more economical and allows for course material to be customized to meet your specific needs.**

**PLEASE NOTE: In order to maintain a credible environment conducive to learning, we do not endorse products nor accept sponsorships or exhibits from providers of products and services.**

## Instructor

Brian C. Roberts, Director of the Water Resources Learning Center, will present these workshops. Mr. Roberts has held several significant water resources positions throughout the years including President of Water Resource Consultants, Hydraulics Engineer for FHWA, Project Manager for Fairfax County Stormwater Management, Executive Director of National Corrugated Steel Pipe Association. He has taught for the Federal Highway Administration, American Society of Civil Engineers, International Erosion Control Association, Soil Conservation Service and more than 35 State Departments of Transportation. He has a BS and MS in Civil Engineering (Water Resources), and has held professional engineering licenses in Virginia and Maryland.

## Continuing Education Units

Seminar participants are eligible for 1.4 (one and four tenths) CEUs for successful completion of the program. The is a nationally recognized unit of measurement for continuing education and training programs that meet certain requirements. Certificates of completion will be issued to each participant.

## Fees

Course fee is \$895 per course and includes workshop materials, breaks, and lunch both days.

## Cancellation Policy

Cancellations must be made five (5) working days in advance to be eligible for refund. Participants can be substituted at any time. Credit will be given for future courses for those unable to make the cancellation deadline. Please note that seating is limited at these locations.

## Book Store

**Hard copies of our reference manuals can now be purchased directly from Water Resources Learning Center. Please see website for details.**

**Course Time: 8:30am – 4:30pm**  
**Registration & Continental Breakfast: 8:00am**