

**CWEG 809  
ELEMENTS OF RAILWAY SIGNALING  
(2.1 CEU's)  
October 27-29, 2003**

**CWEG 117  
COMMUNICATIONS BASED TRAIN  
CONTROL  
(1.4 CEU's)  
October 30-31, 2003**

Over 1,000 students have attended this popular course by The George Washington University *Center for Professional Development*. It is intended for those wishing a solid background in the fundamentals of traditional railroad signaling.

**Who Should Attend?**

Engineers, consultants, and personnel who plan, design, or specify signaling systems for rail transportation. There is no prerequisite for this course but a degree in electrical engineering or equivalent experience would be helpful.

**What You Will Learn**

*Track circuit fundamentals, Automatic Block Signaling, Interlockings, Centralized Traffic Automatic Trail Control, Highway grade crossing systems, Uniform time-warning devices, Car classification yards, Rapid Transit control Systems and more...*

**Instructor**

Rail Systems Solutions' Chief Technologist, Bob Anderson. Bob is an expert in train control system planning, design, engineering, implementation and project management. His experience includes heavy rail, light rail, commuter rail transit, freight railroads and automated people mover projects, which includes management of various capital improvement projects for the LIRR and NYCT. He has managed the design of signal systems, various ATO and ATS projects, as well as supervisory control and communication systems for General Railway Signal, Harmon Industries and GETS Global Signaling.

This course provides both a systems overview and a detailed understanding of this next generation train control technology. Topics include CBTC technology as well as many new industry challenges encountered as we migrate to these new advanced CBTC & PTC systems.

**Who Should Attend?**

Engineers, planners, consultants, and personnel who plan, design, or specify train-control systems. Prerequisite: Conventional railway signaling experience or completion of CWEG 809.

**What You Will learn**

*Benefits & limitations of alternative CBTC technologies, new performance standards, interoperability & interchangeability issues, newly emerging safety issues & techniques, RF licensed and unlicensed bands, broken-rail detection, silent train detection, costs Vs benefits, and more...*

**Instructor**

Transportation Systems Design's President Tom Sullivan and former Director of New Technology Train Control for New York City Transit. Mr. Sullivan is experienced with the design, specification, test and integration of real-time process control systems for the transit and rail transportation industry. He is currently involved with several standard initiatives that promote the use and design of systems based upon open systems and consensus standards.

**For more information: [www.tsd.org/courses](http://www.tsd.org/courses)**

**REGISTRATION FORM (One Form Per Student)**

Name \_\_\_\_\_ Organization \_\_\_\_\_

Address1 \_\_\_\_\_

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

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Credit Card No. \_\_\_\_\_

GWU COURSE	FULL TUITION (Each)	REGISTER BY 9/27/03 (Each)	GROUP DISCOUNT (Each)	COMBINED GROUP DISCOUNT REGISTER BY 9/27/03 (Each)
CWEG809	<input type="checkbox"/> \$2095.00	<input type="checkbox"/> \$1885.50	<input type="checkbox"/> \$1885.50	<input type="checkbox"/> \$1676.00
CWEG117	<input type="checkbox"/> \$1395.00	<input type="checkbox"/> \$1255.50	<input type="checkbox"/> \$1255.50	<input type="checkbox"/> \$1116.00
BOTH	<input type="checkbox"/> \$3141.00	<input type="checkbox"/> \$2826.90	<input type="checkbox"/> \$2826.90	<input type="checkbox"/> \$2512.80

**Make Check, Money Order or Purchase Order to:**

Rail Systems Solutions  
5851 South Broadway  
Littleton CO 80121

720-529-8207 Fax: 303-798-4135

*The sponsors of the classes reserve the right to cancel the class by giving students 2 weeks notice of such cancellation*