

Robotic & GPS Surveying Equipment

SURV 132 – 5 Credits/\$400 – September 2010

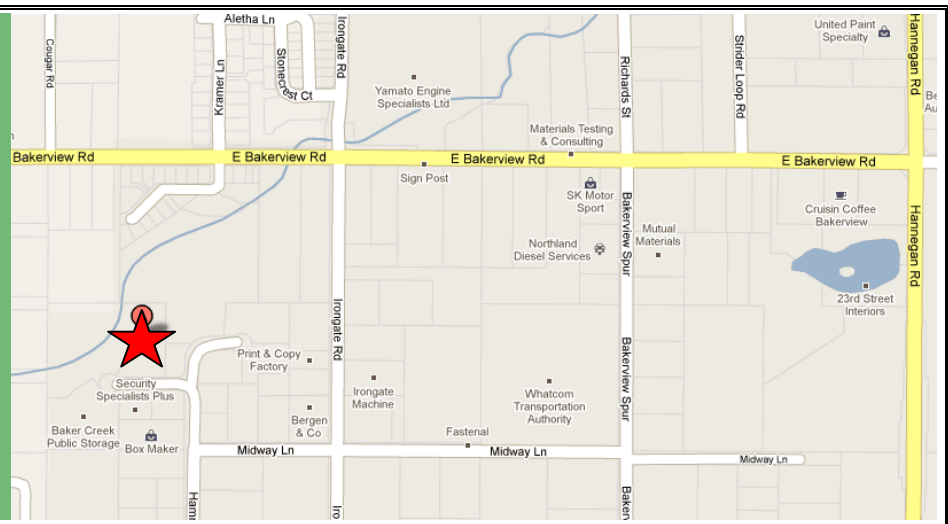


Class Description:

This class provides a hands-on field experience with robotic total station and construction grade GPS equipment. Students practice timely setup, control orientation, topographic mapping techniques, and FG surface cut/fill staking.

Location:

**Building Industry Association of
Whatcom County**
1650 Baker Creek Place
Bellingham, WA 98226



Dates and Times:

The class is scheduled to run on **Tuesday and Thursday evenings at 6:00-9:00 PM from September 7th to September 30th**. In addition, the course will include **survey labs on Saturday mornings**. Please see the Class Calendar on the third page.

Registration and Class Capacity:

This 5-credit class is limited to (12) students and costs \$400. Please register online at www.weiedu.org and send your check payable to the Washington Engineering Institute to the registration office as follows:

Washington Engineering Institute
Registration Office
PO Box 483
Custer WA 98240

School Provided Materials:

- **Survey Equipment:** The school provides the survey equipment necessary for the class with donated equipment time from the local industry. Donated survey equipment time helps keep classes affordable. We must treat the equipment with respect and care to continue coursework opportunities.
- **Hardware:** The school provides a 17" laptop during lecture and lab times.
- **Software:** The school provides the Civil 3D software during lecture and lab times.
- **Lecture Notes:** The school provides lecture handouts as needed.

Student Provided Materials:

- **USB Drive:** Please purchase a 4GB or larger USB drive prior to the first day of class.
- **Personal Computer:** It is highly recommended that students have a personal computer to continue their studies at any time. Students are encouraged to take advantage of the Autodesk Education Community to obtain a student version of Civil 3D while they are registered as a student.
- Positive, motivated, respectful, and helpful classroom character

Instructors

Dave C. Bren, PE, MSCE

**Institute Director and
Civil Engineering Technology Instructor**

Experience: 15 years of experience in the public and private civil engineering industry. Most recent experience was as the Assistant Public Works Director for the City of Blaine. Mr. Bren established and taught the Civil Engineering Technology program at Bellingham Technical College from 1997-2006 while continuing to consult in the industry.

Registration: Professional Engineer
State of Washington License #43156

Education: Master of Science in Civil Engineering
University of Washington

Bachelor of Science in Civil Engineering
University of Washington

Robert D. Morse, PLS

Surveying Technology Instructor

Experience: 38 years of experience in the private surveying, civil engineering, structural, and forestry industries.

Registration: Professional Land Surveyor
State of Washington License #46896

Education: Bachelor of Science in Industrial Technology
Western Washington University

Associates in Civil Engineering Technology
Everett Community College

Surveying Program
British Columbia Institute of Technology

Format:

Class Structure: Evenings will typically run in one-hour blocks as follows:

6:00 PM – Class setup and first hour
6:50 PM – Break
7:00 PM – Class
7:50 PM – Break
8:00 PM – Class last hour

Final Exam and Grades:

Grades will be determined by attendance character (25%) and class projects (75%).

September 2010 – Robotic and GPS Surveying Equipment – SURV 132

Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday	
6		7	Survey Meetings	8		9	Lecture 1	10		11	Site Survey Lab	12	
		6:00-9:00 PM <u>Land Surveyors Association of Washington (LSAW) – Monthly Meeting:</u> ♦ Location TBA				6:00-9:00 PM <u>Robotic Equipment Orientation:</u> ♦ Parts & Field Setup ♦ Control Setup ♦ Tracing breaklines & Descriptors				8:00-3:00 PM <u>P1 – Site Survey Field:</u> ♦ Tracing breaklines ♦ Descriptors ♦ Topo & Site features ♦ Download survey data ♦ PNEZD formatting			
13		14	Lecture 2	15		16	Lecture 3	17		18	Road Staking Lab	19	
		6:00-9:00 PM <u>P1 – Site Survey Office:</u> ♦ Civil 3D breakline work ♦ Surface definition ♦ Site feature linework ♦ Plot and submit project				6:00-9:00 PM <u>P2 – Road CL & BOW Staking:</u> ♦ Civil 3D roadway pointwork ♦ Civil 3D point export ♦ Prepare for road staking project				8:00-3:00 PM <u>P2 – Road CL & BOW Staking:</u> ♦ Set CL hubs and lathe ♦ Set BOW hubs and lathe ♦ Set BOW offset hubs and lathe ♦ String line lathe at elevation			
20		21	Lecture 4	22		23	Lecture 5	24		25	GPS Field Ops Lab	26	
		6:00-9:00 PM <u>GPS Equipment Orientation:</u> ♦ GPS Theory ♦ GPS Construction Methods vs. GPS Survey Methods				6:00-9:00 PM <u>P3 – Site Survey Setup:</u> ♦ Control ♦ Base station setup ♦ Calibration				8:00-3:00 PM <u>P3 – Site Survey Field:</u> ♦ Tracing breaklines ♦ Descriptors ♦ Topo & Site features ♦ Download survey data ♦ PNEZD formatting			
27		28	Lecture 6	29		30	Lecture 7						
		6:00-9:00 PM <u>P3 – Site Survey Office:</u> ♦ Field Operations Discussion ♦ Civil 3D breakline work ♦ Surface definition				6:00-9:00 PM <u>P3 – Site Survey Office</u> ♦ Site feature linework ♦ Plot and submit project							

Washington Engineering Institute, PO Box 483, Custer WA 98240

website: www.weiedu.org

email: admin@weiedu.org

phone: (360) 739-1428



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Class Registration Form 2010 v2.0

Returning students with a Student ID do not need to fill out the gray portions of this form.

Name	
Address	
Phone	
Email	

Class Requested	SURV 132 – Robotic and GPS Surveying Equipment
Class Month / Date	September 2010

WAC 490-105-160 – State Licensed School Reporting Requirements:

Student ID #		
SSN #		
Date of Birth		
Gender		
Disability	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Race	<input type="checkbox"/> American Indian or Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black/African American <input type="checkbox"/> Hawaiian Native or Pacific Islander <input type="checkbox"/> Hispanic <input type="checkbox"/> White/Caucasian <input type="checkbox"/> Multi-racial <input type="checkbox"/> Other	
Prior Education	<input type="checkbox"/> Less than high school graduation <input type="checkbox"/> GED <input type="checkbox"/> High School Graduate <input type="checkbox"/> Post H.S., no degree or certificate <input type="checkbox"/> Associate Degree <input type="checkbox"/> Bachelor Degree <input type="checkbox"/> Master or Doctorate Degree	GED Year _____ Graduation Year _____ Graduation Year _____ Graduation Year _____ Graduation Year _____
Name of Last School Attended		

Student Signature

Date