CN436 Open Source Software for COTS GPS Receivers
ION GNSS 2007, September 25, 2006, 8:30 am-12:00 pm, CEU: 3.0

Instructor: Andrew Greenberg, Portland State University

Prerequisite: Some knowledge of mathematics and computer science will be useful. Additionally, knowledge of basic GNSS receiver design functions will be required. Attendees without this knowledge are recommended to take CN430 Basics on GNSS Signal Processing.

Intended Audience: Engineers, scientists, and managers interested in the area of GNSS using GPS, Galileo, Glonass, and/or satellite navigation system. The course provides details on the implementation of open source software for contractor off the shelf (COTS) GPS receivers. The course is more advanced than a simple introduction to GPS course and contains details on software for COTS receivers.

Notes Provided: Slides presented will be professionally spiral bound, with clear plastic cover, including color to add clarity where needed.

Reference List: A reference list will be provided as part of the note package for completeness and to allow the interested attendee to obtain additional information.

Course Overview: This course introduces GPL-GPS, an open source software infrastructure for creating your own customizable receiver software for commercial, off-the-shelf GPS receivers. This course assumes familiarity with the basics of GPS operation.

Course Content: The main topics to be covered by this course are:

- Introduction to COTS Receivers:
  - Embedded System Fundamentals
  - GPS Receiver Fundamentals
- GPL-GPS Hardware:
  - Zarlink GP4020 and future chipsets
  - GP4020-based & other receiver boards
- GPL-GPS Software Infrastructure:
  - eCos real time operating system
  - OpenSource GPS code
  - GPL-GPS code: threads & data flow
- Nuts and Bolts:
  - Operating System considerations and build
  - Debug tools

Course Outcomes: At the completion of this course, the attendee should have the ability to understand the basics of open software implementation for COTS GPS receivers.