

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

Instructor: Andrew Greenberg, Portland State Aerospace Society

Prerequisite: Some knowledge of mathematics and computer science will be useful.

Intended Audience: Engineers, scientists, and managers familiar with the area of satellite navigation using GPS, Galileo, and/or Glonass. 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: OS, build, and 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.