

CN520C GPS Modernization and Relation to other Global Navigation Satellite Systems (6.0 CEUs)

Instructor: Tom Stansell, Stansell Consulting

Prerequisite: Some knowledge of science and engineering will be helpful, as well as, general understanding of satellite navigations systems, such that can be gained from CN505/506 Fundamentals of GNSS II & II with emphasis in GPS.

Intended Audience: Engineers, scientists, and managers interested in GNSS using GPS, Galileo, Glonass and/or other satellite navigation system seeking information on new GNSS signal formats and systems. The course provides information on Modernized GPS signals, Galileo, and the Quasi-Zenith Satellite System (QZSS). The course is a systems level course and not too detailed for the beginner to GNSS.

Course Overview: This course provides information on many aspects of GPS modernization and how these efforts relate to other GNSS systems; the course covers topics on GPS modernization, including signals and satellite capabilities, interoperability with Galileo signal formats and services, QZSS, Glonass, Compass and other GNSS concepts. The main topics to be covered by this course are:

Morning Session:

- Motivations for modernization
- GPS Modernization:
 - L2C
 - L5
 - M-code
 - L1C signals
 - Galileo interoperability
 - Performance trade-offs and applications
 - Improved GPS III functionality
 - Program status and schedule
 - New capabilities

Afternoon Session:

- Relationship to other GNSS
 - Quasi-Zenith Satellite System (QZSS)
 - Galileo
 - Glonass
 - Chinese Compass and Beidou-2
 - Indian Regional Satellite System
- GNSS Compatibility and Interoperability
- Interoperability improvement opportunities
- Performance Improvement opportunities.

Course Topic Tailoring: GNSS Solutions can tailor the above course outline to meet your special needs or market. We can provide you more or less emphasis in specific

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areas, add or subtract topic areas. Feel free to [contact us](#) and discuss options for your course outline to maximize your benefit. Be sure to include any requested modifications when you [request a quote](#).

Handout Booklet: A booklet of the slide material presented will be provided. One Handout Booklet will be provided per student. The Handout Booklet will be professionally spiral bound with clear protective vinyl on the front and back cover (clear on front, navy blue on back). References will be provided on slides, as appropriate, and a reference list of significant material will be provided. Color will be provided on a limited basis where it is needed for clarity. This information will be copyrighted by the author and cannot be reproduced without the written permission of the author or GNSS Solutions if associated with this course. All color and/or password protected slide copies may be requested at additional cost.

Reference List: A reference list will be provided as part of the note package to allow the interested attendee to obtain additional information. Additionally, an acronym list will be provided.

Location: On-site at the Government and/or contractor facility. A local commercial location can be arranged by GNSS Solutions if requested.

Host Responsibilities:

- Facilities: Room, restrooms, seats, chairs, etc.
 - Refreshments access or provided (coffee, soda, snacks, etc.)
 - Scheduling of students and fund coordination.
 - LCD projector with screen and white/chalkboard (or equivalent).
 - No audio or video taping of the presentation is allowed.
- GNSS Solutions can provide the above items with proper coordination.

Day Schedule: The class room shall be available no later than 07:30 on class day, with presentation beginning at 08:30. A 15 min break will be scheduled every hour. One hour for lunch will be scheduled. The course will end at 16:30 every day. A total of 6 hrs of presentation time will occur each day. Different start, stop, break, and duration times can be accommodated.

Scheduling: A lead time of at least 3 weeks shall be used to schedule the course. A 10% deposited is required when ordering the course.

Rescheduling or Cancellation: Once the course has been ordered, the course can be rescheduled or canceled but fees may occur. The amount of these fees can be negotiated at the time of course rescheduling or cancellation. Generally, non-recoverable expenses (e.g., travel costs) may be forfeited in the event the course is rescheduled. If the course is cancelled, a 10% cancellation fee will apply.

Request a Quote: Please include the dates, location, number of attendees, and any exceptions, tailoring or special requests in your [request for quote](#).