

**CN428 Glonass Fundamentals & Modernization**  
**September 21, 2010, 8:30 am-12:00 pm, CEU: 3.0**  
**GNSS Solutions® Tutorials prior to ION GNSS 2010, September 20-21, 2010**  
**Oregon Convention Center, Portland, Oregon, USA**

**Instructor:** This course will be taught by a team of Russian technical experts including:  
Dr. Sergey Revnivykh, Central Research Institute of Roscosmos,  
Dr. Dmitry Marareskoul, RESHETNEV Corporation,  
Dr. Arcady Tyulyakov, Russian Institute of Radionavigation and Time,  
Dr. Alexey Pokhaznikov, Russian Institute of Radionavigation and Time,  
Dr. Andrey Veitsel, Moscow Aviation Institute, Topcon Positioning System.  
Academician Andrey Finkelstein, Institute of Applied Astronomy of the Russian Academy of Science and  
Alexander Gurko, Navigation Information System Company.

**Prerequisite:** Some knowledge of mathematics and engineering or physics will be useful.

**Intended Audience:** Engineers, scientists, and managers interested in the area of GNSS using Glonass. The course provides a solid basis in the fundamental aspects of Glonass and the modernization efforts for Glonass.

**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 will be taught by a team of Russian technical experts with emphasizes the fundamental and modernization of Glonass. The course includes the history, status and state policy of Glonass followed by the details of the system architecture. Glonass system time, signal processing, tools, and user equipment are covered. This is a rare opportunity to have direct hands-on interactions with the technical experts on Glonass.

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

- GLONASS history, status and State Policy (Dr. Sergey Revnivykh)
- GLONASS system architecture (Dr. Dmitry Marareskul):
  - Space Segment (orbital constellation features, GLONASS satellites)
  - Ground Control Segment
  - Modernization plans
- GLONASS system time architecture, synchronization issues (Dr. Arcady Tyulyakov & Dr. Alexy Pokhaznikov)
- GLONASS signals and processing (Dr. Andrey Veitsel)
- Russian national programs and tools of Earth Rotation Parameters determination for GLONASS support (Academician Andrey Finkelstein)
- GLONASS User Segment and Applications (Alexander Gruko)

**Course Outcomes:** At the completion of this course, the attendee should have the ability to understand the fundamentals aspects of Glonass and the modernization efforts associated with Glonass.