GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS)

3-0-2-0-6

Background / Revision to Satellite Geodesy, Keplerian Laws, Inertial Coordinate Systems etc. Overview of GNSS and Introduction to GPS, GLONASS, GALILEO, BIDOU, IRNSS Satellite Systems etc. GPS: basic concepts, signal structure and code modulation, Pseudo range measurements and navigation solution. Accuracy of navigation position: UERE and DOP. Intentional degradation of GPS signals: Selective availability (SA) and Anti-spoofing (AS), Differential GPS: Space based augmentation systems (e.g., GAGAN, WAAS, EGNOS) and Ground based augmentation systems. GPS Carrier Phase measurements: Single Differencing, Double Differencing and Triple Differencing in GPS measurements. Ambiguity resolution, multi path and other observational errors, Doppler effect on GPS signals, Cycle slip detection and repair. GNSS observation, Data downloading, Processing and Discussion of processed Data.