
Postgraduate Certificate in Marine Navigation and Nautical Technology

Satellite and Space-based Navigation Systems

Aeronautical Information Manual, also known as the Aeronautical Information Publication, is a publication that contains aeronautical information, including data on navigation aids, communication facilities, and weather services.

Absolute Navigation is the process of determining a vessel's or aircraft's position, velocity, and attitude using external references, such as satellites or terrestrial navigation aids.

Accelerometer is a device that measures the acceleration of a vessel or aircraft, which can be used to determine its velocity and position.

Acquisition is the process of obtaining and processing navigation data from various sources, such as GPS or GLONASS.

Almanac is a set of data that contains information about the position and status of navigation satellites, such as their orbital parameters and health status.

Altitude is the height of an object or vessel above a reference level, such as sea level or a datum plane.

Ambiguity is the uncertainty or error in navigation data, which can be caused by various factors, such as signal multipath or atmospheric interference.

Angular Velocity is the rate of change of an object's or vessel's angular position, which can be used to determine its orientation and attitude.

Antenna is a device that receives or transmits navigation signals, such as GPS or radio signals.

Application Program Interface is a set of protocols and tools that allows developers to create software applications that use navigation data and services.

Astronomical Unit is a unit of length that is used to measure the distance between objects in space, such as the average distance between the Earth and the Sun.

Atomic Clock is a highly accurate clock that uses the vibrations of atoms to regulate its timekeeping, which is used as a reference for navigation systems.

Attitude is the orientation of a vessel or aircraft in three-dimensional space, which can be determined using gyroscopes, accelerometers, and other sensors.

Augmentation System is a network of ground stations and satellites that provides correction data to improve the accuracy and reliability of navigation systems.

Automatic Identification System is a system that uses radio signals to identify and track vessels, which can be used to improve navigation safety and efficiency.

Availability is the percentage of time that a navigation system is operational and providing accurate data, which is an important factor in determining its reliability.

Azimuth is the angle between a vessel's or aircraft's heading and a reference direction, such as true north or magnetic north.

Barometric Altimeter is a device that measures an object's or vessel's altitude using changes in atmospheric

pressure.

Beam Width is the angle between the two points where the radiation pattern of an antenna is reduced by half, which affects the accuracy and reliability of navigation signals.

Bearing is the direction or angle between a vessel's or aircraft's position and a reference point, such as a navigation aid or landmark.

Carrier Phase is the phase of the carrier wave of a navigation signal, which can be used to determine the range and position of a vessel or aircraft.

Celestial Navigation is the process of determining a vessel's or aircraft's position using astronomical observations, such as the position of the Sun, Moon, and stars.

Circular Error Probable is a measure of the accuracy of a navigation system, which represents the radius of a circle within which a vessel's or aircraft's position is likely to be.

Code Phase is the phase of the pseudorandom noise code of a navigation signal, which can be used to determine the range and position of a vessel or aircraft.

Continuity is the ability of a navigation system to provide uninterrupted service, even in the presence of errors or failures.

Control Segment is the part of a navigation system that monitors and controls the performance of the system, including the accuracy and reliability of the navigation data.

Course is the direction or angle that a vessel or aircraft is heading, which can be determined using navigation data and controls.

Coverage is the area or volume within which a navigation system provides service, which can be affected by factors such as atmospheric conditions and obstacles.

Data Link is a communication channel that transmits navigation data between systems or devices, such as between a GPS receiver and a computer.

Dead Reckoning is a method of navigation that uses the vessel's or aircraft's previous position, velocity, and heading to estimate its current position.

Declination is the angle between the magnetic north and true north, which can affect the accuracy of navigation systems that use magnetic compasses.

Dilution of Precision is a measure of the accuracy of a navigation system, which represents the effect of satellite geometry on the position error.

Distance Measuring Equipment is a device that measures the distance between a vessel or aircraft and a reference point, such as a navigation aid or landmark.

Doppler Effect is the change in frequency or phase of a navigation signal that occurs when the vessel or aircraft is moving relative to the navigation satellite or aid.

Doppler Shift is the change in frequency of a navigation signal that occurs when the vessel or aircraft is moving relative to the navigation satellite or aid.

Ecliptic is the plane of the Earth's orbit around the Sun, which is used as a reference for celestial navigation and astronomical observations.

Elevation is the angle between a vessel's or aircraft's position and a reference level, such as sea level or a datum plane.

Ellipsoid is a mathematical model of the Earth's shape, which is used to calculate the position and height of a vessel or aircraft.

Emergency Position Indicating Radio Beacon is a device that transmits a distress signal in emergency situations, which can be used to locate the vessel or aircraft.

Ephemeris is a set of data that contains information about the position and velocity of celestial bodies, such as the Sun, Moon, and planets.

Error Budget is a summary of the errors that affect a navigation system, including the sources and magnitude of the errors.

Error Analysis is the process of identifying and quantifying the errors that affect a navigation system, which can be used to improve the accuracy and reliability of the system.

Fault Detection is the process of identifying and isolating faults or failures in a navigation system, which can be used to improve the reliability and availability of the system.

Fault Tolerant is a system or design that can continue to operate even in the presence of faults or failures, which can improve the reliability and availability of the system.

Frequency Division is a method of transmitting multiple navigation signals on a single frequency, which can be used to improve the capacity and efficiency of the navigation system.

Geodetic Datum is a reference system that defines the shape and size of the Earth, which is used to calculate the position and height of a vessel or aircraft.

Geographic Information System is a computer-based system that stores, analyzes, and displays geographic data, which can be used to improve the accuracy and efficiency of navigation systems.

Geoid is the shape of the Earth's surface, which is used as a reference for calculating the position and height of a vessel or aircraft.

Glonass is a Russian navigation satellite system that provides global coverage and accuracy similar to GPS.

Gps is a US navigation satellite system that provides global coverage and accuracy for a wide range of applications, including aviation, maritime, and land transportation.

Gravity Model is a mathematical model of the Earth's gravitational field, which is used to calculate the position and height of a vessel or aircraft.

Heading is the direction or angle that a vessel or aircraft is heading, which can be determined using navigation data and controls.

Height is the distance between a vessel's or aircraft's position and a reference level, such as sea level or a datum plane.

Hydrographic Survey is the process of measuring and mapping the depth and shape of bodies of water, which can be used to improve the accuracy and safety of navigation systems.

Inertial Measurement Unit is a device that measures the acceleration and rotation of a vessel or aircraft, which can be used to determine its position and attitude.

Inertial Navigation is a method of navigation that uses the vessel's or aircraft's acceleration and rotation to estimate its position and velocity.

Information System is a computer-based system that stores, analyzes, and displays navigation data, which can be used to improve the accuracy and efficiency of navigation systems.

Integrity is the ability of a navigation system to provide accurate and reliable data, even in the presence of errors or failures.

Kalman Filter is a mathematical algorithm that is used to estimate the state of a navigation system, which can be used to improve the accuracy and reliability of the system.

Loran is a hyperbolic navigation system that uses radio signals to determine the position of a vessel or aircraft, which was widely used before the development of GPS.

Magnetic Field is the region around a magnet or electric current where magnetic forces can be detected, which can be used to determine the direction and orientation of a vessel or aircraft.

Magnetic Variation is the angle between the magnetic north and true north, which can affect the accuracy of navigation systems that use magnetic compasses.

Map Projection is a method of representing the Earth's surface on a flat map, which can be used to improve the accuracy and efficiency of navigation systems.

Marine Navigation is the process of planning and controlling the movement of a vessel, which requires the use of navigation data and controls.

Mean Sea Level is the average height of the sea's surface, which is used as a reference for calculating the position and height of a vessel or aircraft.

Mission Planning is the process of planning and preparing for a navigation mission, which requires the use of navigation data and controls.

Mobile Mapping is the process of creating and updating maps and geographic data using mobile devices, which can be used to improve the accuracy and efficiency of navigation systems.

Monitoring is the process of tracking and analyzing the performance of a navigation system, which can be used to improve the accuracy and reliability of the system.

Multiple Target Tracking is the process of tracking and identifying multiple targets or vessels, which can be used to improve the accuracy and efficiency of navigation systems.

Nautical Mile is a unit of distance that is used to measure the distance between objects at sea, which is equal to 1852 meters.

Navigation Aid is a device or system that provides navigation data or signals, such as a lighthouse or GPS satellite.

Navigation System is a collection of devices and systems that provide navigation data and services, such as GPS or a chart plotter.

Orbit Determination is the process of determining the position and velocity of a navigation satellite, which can be used to improve the accuracy and reliability of the navigation system.

Orthometric Height is the height of an object or vessel above a reference level, such as sea level or a datum plane.

Performance Standard is a set of requirements and specifications that define the minimum performance of a navigation system, which can be used to improve the accuracy and reliability of the system.

Pilotage is the process of navigating a vessel or aircraft using visual references and controls, which requires a high level of skill and experience.

Point Positioning is a method of navigation that uses a single reference point to determine the position of a

vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Precise Point Positioning is a method of navigation that uses a single reference point to determine the position of a vessel or aircraft with high accuracy, which can be used to improve the accuracy and reliability of navigation systems.

Prediction is the process of forecasting or estimating the future position or trajectory of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Pseudorange is the distance between a vessel or aircraft and a navigation satellite, which can be used to determine the position and velocity of the vessel or aircraft.

Radar Navigation is a method of navigation that uses radar signals to determine the position and velocity of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Radio Navigation is a method of navigation that uses radio signals to determine the position and velocity of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Range Measurement is the process of measuring the distance between a vessel or aircraft and a reference point, such as a navigation aid or landmark.

Relative Navigation is a method of navigation that uses the position and velocity of a reference vessel or aircraft to determine the position and velocity of another vessel or aircraft.

Reliability is the ability of a navigation system to provide accurate and reliable data, even in the presence of errors or failures.

Resolution is the ability of a navigation system to distinguish between two or more closely spaced objects or vessels, which can be used to improve the accuracy and efficiency of navigation systems.

Route Planning is the process of planning and optimizing the route of a vessel or aircraft, which requires the use of navigation data and controls.

Satellite Navigation is a method of navigation that uses satellites to determine the position and velocity of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Sea Surface Topography is the study of the shape and features of the sea's surface, which can be used to improve the accuracy and efficiency of navigation systems.

Sensor Fusion is the process of combining data from multiple sensors to improve the accuracy and reliability of navigation systems.

Simulation is the process of modeling and analyzing the behavior of a navigation system, which can be used to improve the accuracy and efficiency of navigation systems.

Situation Awareness is the ability of a navigation system to understand and respond to the current situation or environment, which can be used to improve the accuracy and efficiency of navigation systems.

Speed Measurement is the process of measuring the speed of a vessel or aircraft, which can be used to determine its position and velocity.

Standard Position is a set of coordinates that define the position of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

State Estimation is the process of estimating the state of a navigation system, which includes the position, velocity, and attitude of the vessel or aircraft.

Survey Control is the process of establishing and maintaining a network of reference points and

benchmarks, which can be used to improve the accuracy and efficiency of navigation systems.

Synthetic Aperture Radar is a type of radar that uses the motion of the vessel or aircraft to create a high-resolution image of the environment, which can be used to improve the accuracy and efficiency of navigation systems.

System Integration is the process of combining multiple systems and components to create a single, cohesive navigation system, which can be used to improve the accuracy and efficiency of navigation systems.

Terrain Referenced Navigation is a method of navigation that uses the shape and features of the terrain to determine the position and velocity of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Tracking is the process of monitoring and predicting the movement of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Trajectory Prediction is the process of forecasting or estimating the future path of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Triangulation is a method of navigation that uses the intersection of multiple lines of position to determine the position of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Tropospheric Delay is the delay in the propagation of navigation signals caused by the troposphere, which can affect the accuracy of navigation systems.

True North is the direction of the Earth's geographic north pole, which is used as a reference for navigation and orientation.

User Segment is the part of a navigation system that interacts with the user, including the display and controls.

Variation is the angle between the magnetic north and true north, which can affect the accuracy of navigation systems that use magnetic compasses.

Velocity Measurement is the process of measuring the velocity of a vessel or aircraft, which can be used to determine its position and trajectory.

Vertical Navigation is the process of determining the altitude or height of a vessel or aircraft, which can be used to improve the accuracy and efficiency of navigation systems.

Vessel Tracking is the process of monitoring and predicting the movement of a vessel, which can be used to improve the accuracy and efficiency of navigation systems.

WAAS is a US satellite-based augmentation system that provides correction data to improve the accuracy and reliability of GPS.

Waypoint is a reference point or location that is used to guide a vessel or aircraft along a planned route, which can be used to improve the accuracy and efficiency of navigation systems.

Wide Area Augmentation System is a satellite-based augmentation system that provides correction data to improve the accuracy and reliability of navigation systems.

World Geodetic System is a reference system that defines the shape and size of the Earth, which is used to calculate the position and height of a vessel or aircraft.