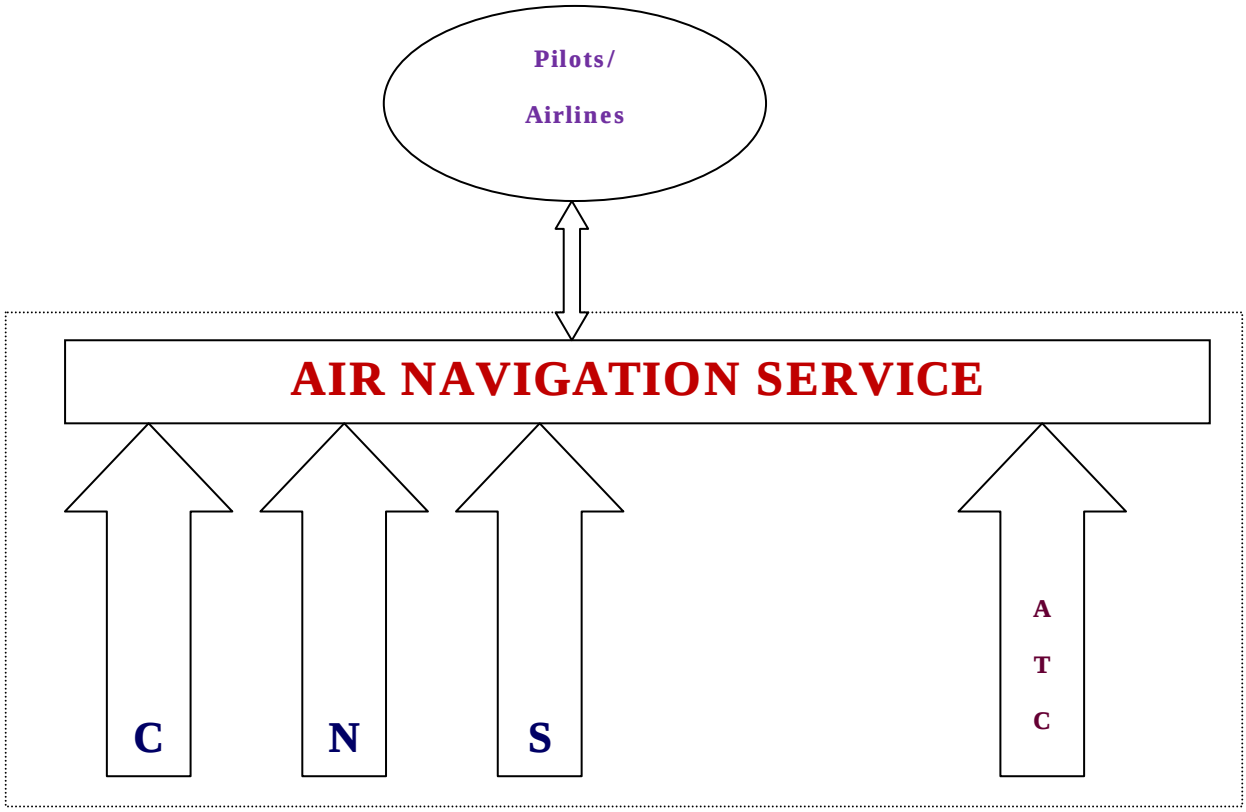
CNS Professionals

Communication, Navigation, Surveillance (CNS)

engineers and executives of

Airports Authority of India

Airports Authority of India (AAI) is entrusted with responsibility of providing Air Navigational Services (ANS), more commonly known as Air Traffic Services (ATS) consisting of CNS services and Air Traffic control services with safety over the designated air spaces. As such AAI is responsible for providing Air Navigation Service at all Airports in the country including airports owned by AAI as well as private operators and limited navigation services at Defense airfields.



Communication, Navigation and Surveillance are three pillars on which safe Air Traffic Services are provided over Indian airspace and airports.

These facilities are used by Air Traffic Controllers and the Pilots during the entire phase of flight .

Who are these CNS personnel?

The CNS (Communication, Navigation, Surveillance) engineers and executives of Airports Authority of India are responsible for planning, procurement, installation, maintenance and operation of Communication, Navigational, Surveillance and ATM automation facilities at all airports and Aeronautical Communication Stations across the country for providing safe and efficient Air Navigation Services/ Air Traffic Services.

How the Air Traffic system works?

Right from the first contact with the ATC Control Tower till the time the Pilot switches of his engines, the Pilot and the Controller depends on the various voice and data **Communication** systems provided through Very High Frequency (VHF), High Frequency (HF) and Satellite communication data link.

Once airborne till his safe touch down on the Runway the Pilot depends on the various **Navigation** systems like VHF Omni-range (VOR) which provides the bearing information to the pilots, Distance Measuring equipment (DME) as the name describes it provides the distance information, Instrument Landing System (ILS) this is the facility which the pilots use at its most critical stage of flight, that is during landing of the aircraft.

For safe monitoring of the flight the Controllers depends on the various **Surveillance** systems like Radars, Automatic Dependent Surveillance (ADS), Advanced Surface Movement Ground Control System (A-SMGCS) etc.

In the airports, with the high density of aircraft movements, the Controllers are also provided with **Air Traffic Management (ATM) Automation System** for safe and efficient Air Traffic Control.

The principal duties of the CNS engineers/ executives are:

a) Performing maintenance on CNS/ATM system/equipment which include:

1) Calibrating flight and ground radio navigation aids;

2) Certification of CNS/ATM system/equipment;

3) Modification of operational CNS/ATM equipment;

4) Corrective maintenance;

5) Preventive maintenance.

b) Performing installation of CNS/ATM system/equipment.

c) Management, monitoring and control of operational CNS/ATM system/equipment.

d) Developing, reviewing and modifying CNS/ATM system/Equipment, and/or maintenance procedures and standards.

CNS officers work on a large variety of CNS/ATM systems and equipment, which requires a wide range of expertise. The system/ equipment require to be maintained as per the stringent standards of ***International Civil Aviation Organization (ICAO) and the Director General of Civil Aviation (DGCA).***

The work of CNS engineers/ executives are not 9 to 5, they work round the clock, sometimes even beyond their normal duty hours to ensure uninterrupted availability of safe and reliable air traffic engineering systems. Their work needs continuous learning and updating of the knowledge with the fast advancement is technology and the variety of state-of-the-art electronic equipment with different make and models that are in service.

In the present fast and enormous development and changes in the field of Aviation/ Air Navigation Service (ANS) CNS engineers and executives play a very important and a vital role. They not only need to monitor the performance, they also need to continuously analyze the performance of the facilities because of the operational risks involved.

Given the growing complexity of today's technical air navigation service equipment, in addition to their professional competences, these highly professional CNS personnel must also show high degrees of self-discipline and flexibility, and be able to cope with sizeable physical and psychological demands. It asks also for a pronounced ability to work in and as a team.

The various Directorates/ Functions in the CNS discipline

- ⇒ **Planning**
- ⇒ **Operation and Maintenance**
- ⇒ **Radio Construction & Development Unit**
- ⇒ **Flight Inspection Unit**
- ⇒ **Centralized Maintenance Cell with its Special Maintenance Units**
- ⇒ **Central Radio Stores Depot**
- ⇒ **Training**
- ⇒ **Aviation Safety**

Training

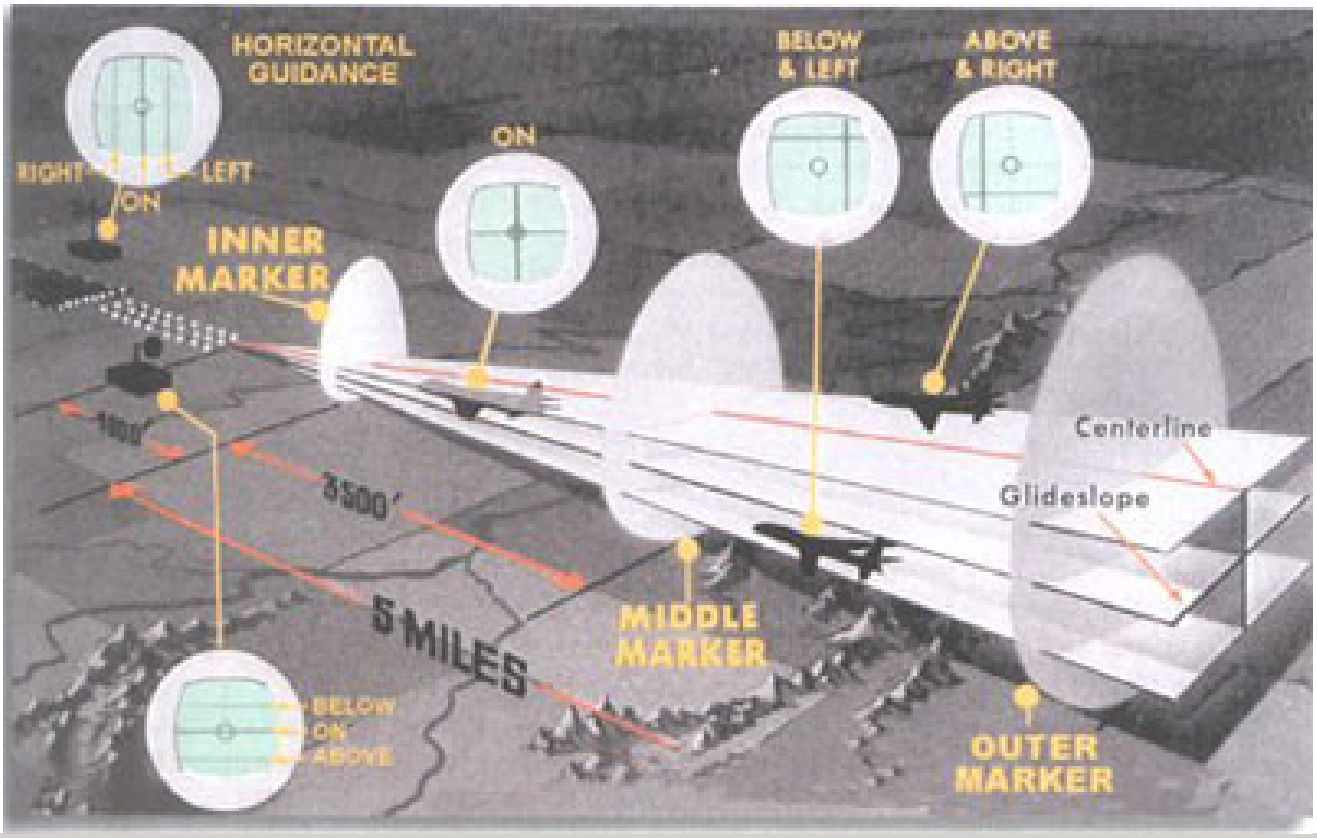
The new entrant has to successfully pass the ab-initio course conducted at Civil Aviation Training College (CATC), Allahabad, U.P.

There is a continuous process of training at CATC and at Regional Training Centers for development of competency/ proficiency at various levels for the CNS and Automation facilities/ equipment.

The executives have the scope of undergoing factory training at foreign countries for the new/latest equipment procured.

Air Traffic Safety Electronics Personnel

The ICAO recognized terminology for personnel involved in maintenance and installation of CNS/ATM system is Air Traffic Safety Electronics Personnel (ATSEP)



The most critical phase of the flight is during landing and specially at low visibility. The Instrument Landing System (ILS) brings the aircraft safely back home.

Navigation: **Doppler VOR and DME**

Surveillance: **Radar Antenna**

Navigation: **Instrument Landing System (ILS) Localizer Antenna Array**