INTERNSHIP REPORT

on

AIRPORT AUTHORITY OF INDIA,
COIMBATORE INTERNATIONAL AIRPORT, COIMBATORE

Submitted by

ABDUL MUHZIN P A
(2225S0046)

Under the Supervision of

Dr.E.DEEPA MBA., M.Phil., Ph.D.,

(HoD & Associate Professor, Department of Aviation Management)

An Institutional Report Submitted in the partial fulfillment of requirement for the award of the degree of

BBA AVIATION MANAGEMENT

DEPARTMENT OF AVIATION MANAGEMENT

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2023 – 2024

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BONAFIDE CERTIFICATE

This is to certify that **ABDUL MUHZIN P A** bearing register number **2225S0046** of **II YEAR BBA - AVIATION MANAGEMENT** has completed internship training based on the syllabus and given satisfactory report of internship training programme during the academic year 2023-2024.

STAFF IN-CHARGE **HEAD OF THE DEPARTMENT**

Submitted on the Viva Voce held at Department of Aviation Management, AJK College of Arts and Science, Coimbatore on _____.

INTERNAL EXAMINER **EXTERNAL EXAMINER**

PRINCIPAL

DECLARATION

I, **ABDUL MUHZIN P A (2225S0046)** hereby declare that the Internship entitled **"AIRPORT AUTHORITY OF INDIA, COIMBATORE INTERNATIONAL AIRPORT, COIMBATORE**" is my internship work carried out during the II year BBA - Aviation Management at AJK College of Arts and Science, Coimbatore, under the supervision of **Dr.E.DEEPA, MBA., M.Phil., Ph.D., HoD & Associate Professor, Department of Aviation Management , AJK College of Arts and Science, Coimbatore** and has not submitted previously for the award of any other degree or diploma by me to any institution or university according to the best of my knowledge.

SIGNATURE OF THE CANDIDATE

Place: Coimbatore

Date:

ACKNOWLEDGEMENT

I would like to express my sincere thanks and immense gratitude to our honorable Secretary **Dr. AJEET KUMARLAL MOHAN** of **AJK Educational Institutions** for providing all the needed facilities to complete my work.

I would also like to express my deepest gratitude and sincere thanks to our Principal, **Dr.S.RAJU M.Sc.,MBA.,Ph.D.,** of AJK College of Arts and Science, Coimbatore for his continuous encouragement to complete the training successfully.

I am feeling obliged in taking the opportunity to sincerely thank and owe my profound gratitude to eminent guide and Head of the Department, Dr**.E.DEEPA MBA.,M.Phil.,Ph.D.,** for her unlisted guidance and encouragement to accomplish this report. Her timely advice, meticulous scrutiny, scholarly advice has helped me to a very great extent to accomplish this task.

I extend my sincere thanks to **Dr.M.SASIDHARAN** for his continuous professional support, encouragement and providing the facilities to complete my training in all the ways.

I would like to express my sincere gratitude to my parents, friends and to all the respondents for their unbounded support to make this training a reality.

COMPANY CERTIFICATE

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CHAPTER – I
INTRODUCTION

General Background

The Internship Programme at Coimbatore International Airport, for 15 days which provided exposure about various sub domains related to airport management such as Cargo, Airport Terminal building, Air Traffic Control (ATC), and Communication, Navigation & Surveillance. The course also provided practical exposure by means of visits to various departments of airport. The program involved in both theoretical and practical activities involving presentation activities, and Classes.

Internships are a great way to learn about an occupation and get work experience at the same time. Discover the benefits of interning. Generally, the internship works as an exchange of services for experience between the student and his or her employer. Students exchange their cheap or free labor to gain experience in a particular field.

This internship report mainly focuses on field visit to various departments of airport. It covers the working experiences in the Airport. It provides and insight into an Airport business activities and give knowledge of the Airport in Aviation industry.

1.1. Coimbatore International Airport

Coimbatore International Airport (IATA: CJB, ICAO: VOCB) is the primary airport serving the city of Coimbatore in South India. It is located at Peelamedu, about 13 km (8.1 mi) from the center of the city. Previously known as Peelamedu Civil Aerodrome, it is the 15th largest airport in India in terms of total aircraft movement, 18th largest in terms of passengers handled and 13th largest in terms of cargo handled.

The airport commenced operations in 1940 as a civil aerodrome with Indian Airlines operating Fokker F27, Douglas DC-3 and later Hawker Siddeley HS 748 aircraft. Beginning with services to Chennai and Bangalore, other destinations like Cochin and Mumbai were added later. The airport was modernized with an extended runway to accommodate larger aircraft like the Boeing 737 and was reopened in 1987. The Sulur Air Force Base located further east of Coimbatore was temporarily used for civil aviation during this period. As of 2012, the airport is served by more than ten domestic and international carriers.

The Prime Minister of India declared the government's intention to upgrade Coimbatore Airport to International status in a meeting with senior ministers on 6 June 2012 and the Union Cabinet granted it the status of international airport on 2 October 2012.

The Airport has one runway that is 9,760 feet (2,970 m) in length extended from 8,500 ft (2,600 m) to accommodate larger aircraft. The runway is further slated to be extended to 12,500 feet (3,800 m) to handle wide bodied aircraft such as the Airbus A380.

New domestic and international divisions were added in 2010 to the already existing common terminal and an Instrument Landing System (ILS) is in place since 2008. The airport has a parking management system with a capacity to accommodate nearly 300 cars. There are two hangars in the airport; one provides housing for the planes of Coimbatore Flying Club, the other provides shelter for private carriers.

The further proposed expansion of the airport includes extension of runway to 12,500 ft (3,800 m) to accommodate larger aircraft such as the Boeing 747 and Airbus A380 and construction of a parallel taxiway to the runway to minimize runway occupancy time and turnaround time of aircraft. Two more parking bays will be added, raising the total number of bays to 10.

The Airport is located on Avinashi Road about 10 km (6.2 mi) from the central bus station. Frequent bus services are available from Gandhipuram central bus station and also from other auxiliary bus stations at Singanallur and Ukkadam. The airport is 11 km (6.8 mi) from the major railway station, Coimbatore Junction and the nearest rail stations are at Singanallur and

Peelamedu. Cab services, call taxis and auto rickshaws provide 24 hours commuting services to the Airport**.**

Vision

Vigilance Department is seen as innovative, positive, efficient & effective set up in institutingethical work practices in the organization.

Mission

- ✓ Timely and effective implementation of all programmers under preventive vigilance;
- ✓ Conclude all the cases in a time bound manner as prescribed in Quality Management System;
- ✓ Bring all the cases of investigation which are more than one year old in CVD to their logical conclusion by end of 2010 and such pendency to be avoided thereafter; and
- ✓ Bring all the cases more than one year old under disciplinary proceedings to their logical conclusion by end of 2010 and such pendency to be avoided thereafter.

Objectives of the Internship

The objectives of my internship are as follows:

- ✓ To learn and experience the practical work environment and working procedure of organization.
- ✓ To know the knowledge of aviation industry specially airport management.
- ✓ To learn the applicability and difference of theoretical study and practical work.

CHAPTER II

CHAPTER – II
INTERN DEPARTMENT FUNCTIONS

Departments of Airport

The internship comprises of field visits to various departments of airport which were learned theoretically and practically. The internship consist of several departments such as,

- ✓ Air Cargo Department
- ✓ Airport Terminal Building
- ✓ Air Traffic Control (ATC) and
- ✓ Communication, Navigation and Surveillance (CNS)

Air Cargo Department

Air cargo is the transportation of goods and commodities by air. It is crucial for the movement of goods worldwide and serves as a vital component of the global supply chain. Airlines, freight forwarders, and logistics companies provide air cargo services to deliver various products quickly and efficiently. This includes perishable items, electronics, machinery, pharmaceuticals, and more.

In air cargo terminals, the Department of Cargo carries out a wide range of important responsibilities. According to the AAI Act of 1994, it is responsible for setting up, managing, and developing cargo terminals at airports in the country. These terminals are used for storing and processing goods. This is mentioned in the AAI Act of 1994, paragraph b (3), and it was amended in 2003. An act as a custodian of International Cargo u/s 45 of the Customs Act, 1962.

After establishing Joint Venture Companies at several Indian Airports and Cargo Terminals managed by AAI, a competitive environment was created for Cargo handling. This was done to ensure the best services for Cargo Stakeholders. In this direction, AAl has appointed Ground Handling Agents under the GHAAct-2007 for providing equipment and manpower for 15 Airports in the country for carrying out the airlines and cargo functions on behalf of airlines/AAI. AAl has been undertaking the International Cargo handling operations at Chennai, Kolkata, Lucknow, Coimbatore, Trichy, Amritsar, Guwahati, Mangalore Airports

Departmentally and Trivandrum, Varanasi, Bagdogra, Bhubaneshwar, Calicut, Vizag, Jaipur, Ahmedabad, Indore and Goa Airports through 0&M Model.

At Domestic front, AAl, according to its road map have identified 24 Airports across the country for creation of Common User Domestic Air Cargo Terminals (CUDCT), out of which Port Blair, Coimbatore, Jaipur, Chennai, Amritsar and Lucknow (outbound) Airports are being run departmentally and at Madurai, Vizag, Raipur, Indore and Mangalore Airports CUDCT are being managed on O&M contract basis.

Functions of the Department of Air Cargo

1. Discharge corporate functions of Cargo Department
2. Framing corporate policies on AAI's cargo handling at international as well as domestic airports
3. Implementation of IATA rules, ICAO recommendations, Implementation of BCAS, CBEC objectives and regulations, pertaining to cargo handling
4. Liaison at apex level with the regulatory Ministries, and other bodies, as well as user agencies such as Central Board of Excise and Customs, DGCA, Ministry of Commerce
5. Tapping hitherto untapped areas of operation for harnessing additional revenue from cargo handling, including Express and Courier Operations
6. Finalization of long and short term infrastructural requirements, in consultation with Department of Planning, Engineering and Finance including Annual Plan and Five Year Plan
7. Overseeing AAI's cargo operations at the two metro airports and other domestic airports
8. Representing AAI in the various trade bodies like SCOPE-Air, sectorial meeting on EC/EDI Taskforce Meeting, Conventions and high level meetings arranged by BAR- India (Cargo), CII, Federation of Freight Forwarder's Association of India (FFFAI), Air Cargo Agents Association of India (ACAAI), Federation of Indian Exporter's Organization (FIEO), Chambers of Commerce, etc.
9. Setting up of cargo terminals and managing them by providing services comparable to international standards
10. Modernization of cargo handling system, re-engineering systems and procedures for hassle free terminal operations resulting reduction in dwell time
11. Finalization of tariff on cargo handling services in consultation with the user community like airlines, freight forwarders, etc.

12. Make proposals on various policies and operating matter to the AAI board; implementation of the policy decisions taken by the Board/Government of India
13. Finalization of Training programs for cargo personnel in consultation with ED (Training) to inculcate better professionalism amongst AAI's cargo functionaries

Procedure for Clearance of Export Goods

1. Export procedure – Shipping Bill

For clearance of export goods, the exporter or his agent has to obtain an Importer-Export Code (IEC) number from the Directorate General of Foreign Trade prior to filing of Shipping Bill. Under the EDI System, IEC number is received by the Customs System from the DGFT online. The exporter is also required to register authorised foreign exchange dealer code (through which export proceeds are expected to be realised) and open a current account in the designated bank for credit of any Drawback incentive.

All the exporters intending to export under the export promotion scheme need to get their licences/DEEC book etc. registered at the Customs Station. For such registration, original documents are required.

2. Processing of Shipping Bill – Non-EDI

Under manual system, Shipping Bills or, as the case may be, Bills of Export are required to be filed in format as prescribed in the Shipping Bill and Bill of Export (Form) Regulations, 1991. The Bills of Export are being used if clearance of export goods is taken at the Land Customs Stations. Different forms of Shipping Bill/Bill of Export have been prescribed for export of duty-free goods, export of dutiable goods and export under drawback etc.

Shipping Bills are required to be filed along with all original documents such as invoice, AR-4, packing list etc. The assessing officer in the Export Department checks the value of the goods, classification under Drawback schedule in case of Drawback Shipping Bills, rate of duty/cess where applicable, exportability of goods under Foreign Trade Policy and other laws in force. The DEEC/DEPB Shipping Bills are processed in the DEEC group. In case of DEEC Shipping a bill, the assessing officer verifies that the description of the goods declared in the Shipping bill and invoice match with the description of the resultant product as given in the DEEC book. If the assessing officer has any doubts regarding value, description of goods, he may call for samples of the goods from the docks. He may also call for any other information

required by him for processing of Shipping Bill. He may assess the Shipping Bill after visual inspection of the sample or may send it for test and pass the Shipping Bill provisionally.

Once, the Shipping Bill is passed by the Export Department, the exporter or his agent presents the goods to the Shed Appraiser (Export) in docks for examination. The Shed Appraiser may mark the document to a Custom officer (usually an examiner) for examining the goods under his supervision. If the description and other particulars of the goods are found to be as declared, the Shed Appraiser gives a 'Let Export Order', after which the exporter may contact the Preventive Superintendent for supervising the loading of goods on to the vessel.

In case the examining staffs in the docks finds some discrepancy in the goods, they may mark the Shipping Bill back to Export Department/DEEC group with their observations as well as sample of goods, if needed. The Export Department reconsiders the case and decides whether export can be allowed, or amendment in description, value etc. is required before export and whether any other action is required to be taken under the Customs Act, 1962 for mis-declaration of description of value etc.

3. EDI Processing of Shipping Bill

Under EDI System, declarations in prescribed format are to be filed through the Service Centres of Customs. A checklist is generated for verification of data by the exporter/CHA. After verification, the data is submitted to the System by the Service Centre operator and the System generates a Shipping Bill Number, which is endorsed on the printed checklist and returned to the exporter/CHA. For export items which are subject to export cess, the TR-6 challans for cess is printed and given by the Service Centre to the exporter/CHA immediately after submission of shipping bill. The cess can be paid on the strength of the challan at the designated bank. No copy of shipping bill is made available to exporter/CHA at this stage.

In many cases the Shipping Bill is processed by the EDI system on the basis of declarations made by the exporters without any human intervention. In other cases where the Shipping Bill is processed on screen by the Customs Officer, he may call for the samples, if required, for confirming the declared value or for checking classification under the Drawback Schedule. He may also give any special instructions for examination of goods, if felt necessary.

The exporter/CHA can check up with the query counter at the Service Centre whether the Shipping Bill submitted through the EDI system has been cleared or not, before the goods are brought into the Docks for examination and export. In case any query is raised, the same is

required to be replied through the Service Centre or in case of CHA's having EDI connectivity, through their respective terminals.

4. Octroi certification for export goods

Since the Shipping Bill is generated only after the 'Let Export' order is given by Customs, the exporter may make use of export invoice or such other document as required by the Octroi authorities for the purpose of Octroi exemption.

5. Waiver of GR form

Generally, the processing of Shipping Bills requires the production of a GR form that is used to monitor the foreign exchange remittance in respect of the export goods. However, there are few exceptions when the GR form is not required. An example is export of goods valued not more than US $25,000/- and another is export of gifts valued upto Rs.5, 00, 000/-.

6. Arrival of export goods at docks

The goods brought for the purpose of export are allowed entry to the Dock on the strength of the check list and other declarations filed by the exporter in the Service Centre. The custodian has to endorse the quantity of goods actually received on the reverse of the check list.

7. Customs examination of export goods

After the receipt of the goods in the Docks, the exporter/CHA may contact the Customs Officer designated for the purpose, and present the check list with the endorsement of custodian and other declarations along with all original documents such as, Invoice and Packing list, AR-4, etc. The Customs Officer may verify the quantity of the goods actually received and enter into the system and thereafter mark the Electronic Shipping Bill and also hand over all original documents to the Dock Appraiser who assigns a Customs Officer for examination and indicate the officers' name and the packages to be examined, if any, on the check list and return it to the exporter/CHA.

The Customs Officer may inspect/examine the shipment along with the Dock Appraiser and enter the examination report in the EDI system. He would then mark the Electronic Shipping Bill along with all original documents and check list to the Dock Appraiser. If the Dock Appraiser is satisfied that the particulars entered in the EDI system conform to the description

given in the original documents and as seen in the physical examination, he may proceed to allow “Let Export” for the shipment and inform the exporter/CHA.

8. Examination norms

The Board has fixed norms for examination of export consignments keeping in view the quantum of incentive, value of export goods, the country of destination etc. The scale of physical examination of various categories of exports at the port of export is as follows:

A. Factory stuffed export cargo:

B. Export under Free Shipping Bills:

C. Export under Drawback/DEPB Schemes

D. Export under EPCG/DEEC schemes:

E. Export under Shipping Bills claiming benefits under Reward Schemes:

In all cases referred to above, in respect of consignments selected for examination, a minimum of two packages with a maximum of 5% of packages (subject to a maximum of 20 packages from a consignment) shall be opened for examination. The package number to be opened for examination is selected by the EDI system.

It is to be ensured that exporters do not split up consignments so as to fall within the lower examination norms. Therefore, wherever on the same day the same exporter attempts to export a second consignment (other than under Free Shipping Bills) involving export incentive of Rs.1 lakh or less (Drawback/DEPB) or in other cases having the FOB value up to Rs.5 lakhs to the same country, the EDI system would alert the Examining Officer. The Examining Officer can then decide whether to subject the second consignment for examination or not. In case the buyer in both or more consignments happen to be the same person, subsequent consignments should be examined

After the goods have been presented for registration to Customs and determination has been made whether or not to examine the goods, no amendments in the normal course are expected. However, in case an exporter wishes to change any of the critical parameters resulting in change of value, Drawback, DEPB credit, port etc. such consignment should be subjected to examination.

Notwithstanding the examination norms, any export consignment can be examined by the Customs (even up to 100%), if there is any specific intelligence in respect of the said consignment. Further, to test the compliance by trade, once in three months a higher percentage of consignments (say for example, all the first 50 consignments or a batch of consecutive 100 consignments presented for examination in a particular day) would be taken up for examination. Out of the consignments selected for examination a minimum of two packages with a maximum of 5% of packages (subject to a maximum of 20 packages from a consignment) would be taken up for checking/examination.

In case export goods are stuffed and sealed in the presence of Customs/Central Excise officers at the factory of manufacture, ICD/CFS, warehouses and other places where the Commissioner has, by a special order, permitted, the containers should be bottle sealed or lead sealed. Also, in such case the consignments shall be accompanied by an examination report in the prescribed form. In case of export through bonded trucks, the truck should be similarly bottle sealed or lead sealed. In case of export by ordinary truck/other means, all the packages are required to be lead sealed

If the export is made claiming benefits of Drawback / DEPB or any other export promotion scheme in addition to claiming benefits under any Schemes of Chapter 3 of FTP, then the examination norms as prescribed by the Board for the respective export promotion schemes would apply. In order to claim benefits under the Reward Schemes, the exporter is required to declare the intention to claim such benefits on the Shipping Bill itself.

Exports by EOUs and units in SEZs are governed by examination norms, as applicable for EPCG/DEEC schemes. However, if the export consignment of EOUs or SEZs unit has been sealed by Customs/Central Excise Officer, the norms for factory stuffed cargo will apply.

Routine examination of perishable export cargo is not to be conducted. Customs should resort to examination of such cargo only on the basis of credible intelligence or information and with prior permission of the concerned Assistant Commissioner/ Deputy Commissioner. Further, the perishable cargo which is taken up for examination should be given Customs clearance on the day itself, unless there is contravention of Customs laws.

In cases of cargo transported for exports through containers or bonded closed trucks to Gateway Port after following the Central Excise/ Customs officer supervised sealing or self-sealing by manufacturer exporters, EOUs; and containers aggregated with LCL cargo in CFSs/

ICDs sent to the port after sealing in the presence of officers the tamper proof one-time bottle seal alone should be adopted as it ensures safety and security of sealing process and avoid any resealing at the point of export. In respect of one-time bottle seals provided by the department, its cost may be recovered from exporters/ manufacturers or their agents. However, exporters/manufacturers need not be compelled to procure such bottle seals only from the department as this would defeat the very purpose of self-sealing facility and avoid delay. When trucks/ other means used for export cargo cannot be bottle sealed, same would be subject to normal examination norms at gateway port.

The exporters can avail of the facility of removal of export goods from the factories on the basis of self-certification and self-sealing; but these shall be examined at the port of export on the basis of prescribed examination norms.

9. Factory stuffing permission

The grant of a single factory stuffing permission valid for all the Customs stations instead of Customs station-wise permission is permitted. This facility is subject to the following safeguards:

(i) The exporter is required to furnish to Customs a list of Customs stations from where he intends to export his goods.

(ii) The Customs House granting the factory stuffing permission should maintain a proper register to keep a track-record of such permissions, and also create a unique serial number for each of such permissions.

(iii) The Customs House granting the factory stuffing permission should circulate the permission to all Customs Houses concerned clearly indicating the name and contact details of the Preventive Officer/Inspector and Superintendent concerned of the Customs House granting the permission as well as those of the Central Excise Range concerned to facilitate real time verifications, if required.

(iv) In case, something adverse is noticed against the exporter, the Customs station concerned shall promptly intimate the Customs house which has granted the permission, which will, in turn, withdraw the permission, and inform to all Customs houses concerned.

10. Variation between Declaration and physical examination

The check list and the declaration along with all original documents submitted with the Shipping Bill are retained by the Appraiser concerned. In case of any variation between the declaration in the Shipping Bill and physical documents/examination report, the Appraiser may mark the Electronic Shipping Bill to the Assistant Commissioner/Deputy Commissioner of Customs (Exports) along with sending the physical documents and instruct the exporter or his agent to meet the Assistant Commissioner/Deputy Commissioner of Customs (Exports) for settlement of dispute. In case the exporter agrees with the views of the Department, the Shipping Bill needs to be processed accordingly. Where, however, the exporter disputes the view of the Department the issue will be finalized in accordance with the principles of natural justice.

11. Drawl of samples

Where the Appraiser Dock (Export) orders for samples to be drawn and tested, the Customs Officer may proceed to draw two samples from the consignment and enter the particulars thereof along with details of the testing agency in the ICES/EDI system. There is no separate register for recording dates of samples drawn. Three copies of the test memo shall be prepared by the Customs Officer and signed by the Customs Officer and Appraising Officer on behalf of Customs and the exporter or his agent. The disposals of the three copies of the test memo are as follows:

(i) Original – to be sent along with the sample to the test agency.

(ii) Duplicate – Customs copy to be retained with the 2nd sample.

(iii) Triplicate – Exporter's copy.

11.2 If he considers it necessary, the Assistant Commissioner/Deputy Commissioner may also order sample to be drawn for purposes other than testing such as for visual inspection and verification of description, market value inquiry, etc.

12. Stuffing / loading of goods in containers

The exporter or his agent should hand over the Exporter's copy of the Shipping Bill duly signed by the Appraiser permitting "Let Export" to the steamer agent who would then approach the

proper officer (Preventive Officer) for allowing the shipment. In case of container cargo the stuffing of container at Dock is done under Preventive Supervision. Further, loading of both containerized and bulk cargo is to be done under Preventive Supervision. The Customs Preventive Superintendent (Docks) may enter the particulars of packages actually stuffed into the container, the bottle seal number, details of loading of cargo container on board into the EDI system and endorse these details on the Exporter's copy of the Shipping Bill. If there is a difference in the quantity/number of packages stuffed in the containers/goods loaded on vessel the Superintendent (Docks) may put a remark on the Shipping Bill in the EDI system and that it requires amendment or change in quantity. Such Shipping Bill may not be taken up for the purpose of sanction of Drawback/DEEC logging, till it is suitably amended. The Customs Preventive Officer supervising the loading of container and general cargo into the vessel may give "Shipped on Board" endorsement on the Exporters copy of the Shipping Bill.

Palletisation of cargo is done after grant of Let Export Order (LEO). Thus, there is no need for a separate permission for palletisation from Customs. However, the permission for loading in the aircraft/vessel would continue to be obtained.

13. Amendments

Any correction/amendments in the check list generated after filing of declaration can be made at the Service Centre provided the documents have not yet been submitted in the EDI system and the Shipping Bill number has not been generated. Where corrections are required to be made after the generation of the Shipping Bill number or after the goods have been brought into the Export Dock, the amendments will be carried out in the following manner:

(i) If the goods have not yet been allowed "Let Export" the amendments may be permitted by the Assistant Commissioner (Exports).

(ii) Where the "Let Export" order has already been given, amendments may be permitted only by the Additional/Joint Commissioner in charge of Export.

In both the cases, after the permission for amendments has been granted, the Assistant Commissioner/Deputy Commissioner (Export) may approve the amendments on the EDI system on behalf of the Additional/Joint Commissioner. Where the print out of the Shipping Bill has already been generated, the exporter may first surrender all copies of the Shipping Bill to the Dock Appraiser for cancellation before amendment is approved on the system.

In respect of amendment in AEPC Certificate on receipt of request from the exporter, the Assistant Commissioner /Deputy Commissioner (Exports) should allow the change of port in EDI Shipping Bills / invoice to help exporters in getting the goods cleared without waiting for an amendment of documents by AEPC. The ratification of the port of change would be done subsequently by AEPC.

14. Drawback claim

After actual export of the goods, the Drawback claim is automatically processed through EDI system by the officers of Drawback Branch on first-come-first- served basis. The status of the Shipping Bills and sanction of Drawback claim can be ascertained from the query counter set up at the Service Centre. If any query is raised or deficiency noticed, the same is also shown on the terminal and a printout thereof may be obtained by the authorized person of the exporter from the Service Centre. The exporters are required to reply to such queries through the Service Centre. The claim will come in queue of the EDI system only after reply to queries/deficiencies is entered in the Service Centre.

All the claims sanctioned on a particular day are enumerated in a scroll and transferred to the Bank through the system. The bank credits the drawback amount in the respective accounts of the exporters. The bank may send a fortnightly statement to the exporters of such credits made in their accounts.

The Steamer Agent/Shipping Line may transfer electronically the EGM to the Customs EDI system so that the physical export of the goods is confirmed, to enable the Customs to sanction the Drawback claims.

15. Generation of Shipping Bills

After the "Let Export" order is given on the EDI system by the Appraiser, the Shipping Bill is generated in two copies i.e., one Customs copy, one exporter's copy (EP copy is generated after submission of EGM). After obtaining the print out the Appraiser obtains the signatures ofthe Customs Officer on the examination report and the representative of the CHA on both copies of the Shipping Bill and examination report. The Appraiser thereafter signs and stampsboth the copies of the Shipping Bill at the specified place. The Appraiser also signs and stamps the original and duplicate copy of SDF.

The Customs copy of Shipping Bill and original copy of the SDF is retained along with the original declarations by the Appraiser and forwarded to Export Department of the Custom House. The Appraiser may return the exporter copy and the second copy of the SDF to the exporter or his agent.

16. Export General Manifest

All the shipping lines/agents need to furnish the Export General Manifests, Shipping Bill-wise, to the Customs electronically before departure of the conveyance.

Apart from lodging the EGM electronically the shipping lines need to continue to file manual EGMs along with the exporter copy of the Shipping Bills in the Export Department where they would be entered in a register. The shipping lines may obtain acknowledgement indicating the date and time at which the EGMs were received by the Export Department.

Procedure of Import Procedures and Documentations

A very important role is played by the Import and Customs authorities in all countries of the world when it comes to the entry of goods into the country. The era of globalization ushered in more and more interactions between different countries of the world, leading to an increase in the masses of imports and exports. In order to effectively manage all this, having a trained body of officials and rules is very important.

Import procedures and documentation are required for any good that crosses the international borders and enters the country. This can range from mere gifts to big shipments.

Steps for the Process of Import Procedure

The following steps can adequately explain the process of import procedure anddocumentation:

1. First and foremost, before anything can enter the country, a comprehensive list of what item is being imported and for what purpose needs to be updated and registered. Data like this can be obtained from trade associations and trade organisations.
2. The EXIM Policy is then consulted by the Importer to make sure that all rules and regulations are followed and standards are met.

3. Then the request of the instalment of foreign cash takes place which includes the trading of Indian Currency into foreign notes. In this matter, The Exchange Control Department of the Reserve Bank of India (RBI) manages foreign trade exchange in India.
4. The importer then puts in an import request with the exporter for the supply of merchandise.
5. Once the payments are settled between the importer and the seller, a letter of credit is issued to the importer.
6. The importer arranges for the payment of the advance money on arrival of the goods at the port. This saves the importer from the high penalties.
7. The overseas supplier after in-loading the merchandise on the ship dispatches the "Shipment Advice" to the importer to give information with respect to the shipment of goods.
8. Dock charges are also paid out by the importer once the goods are received and all inspections are completed.

In India, the procedure of imports usually follows this outline, unless the goods are otherwise specified as hazardous or are specially requested by the government of the country. A number of documents are required to make sure that this process takes place seamlessly, which is important for the importer to have quick access to.

These Documentations Include

1. All invoices, packing lists, certificates specifying the origins of the product and its description, GATT declaration, IET documents and any other document that the government specifies.
2. Catalogue, Technical Write ups – required for import of machinery and equipment.
3. Chemical Composition, Test bond required by the respective customs – all are needed in case of Chemical Import.
4. Phytosanitary Certificate with Fumigation, Certificate of Origin – required for un-processed food, plant products, wood imprints, fruits and seeds import.
5. Test Report and Composition – for processed food product import.
6. Azo Dye Inspection Certificate – in Import of Fabric
7. PLAT T essential for valuation – In case of import of Plastic Granules.
8. Registered EPCG License, Panelised Undertaking by Importer, Bond com BG Bank Covering Letter, Signature Attestation from Bank, Copy of Board of Regulation,

Particles of Memorandum, and Detail of Previous License – Import under EPCGlicense.

9. Form necessary from Supplier for customs duty advantage – Import of Ceramic Tiles.
10. Test Certificate – Import of Wine and Whiskey.

Import Procedure

Import procedure means all the steps involved in purchase of goods from any foreign country. The procedural steps involved in import trade differ from country to country in respect of their import policy, statutory requirements. In majority of the countries import trade is being controlled by the government. The objective of empowering the government in the import trade is to keep a strict restriction policy in regards of foreign exchange, protection of Indigenous industries etc. For importing goods, a specified and regulated procedure is to be followed.

The procedure is summed into quick steps as below:

1. Trade Enquiry
2. Procurement of Import License and Quota
3. Obtaining Foreign Exchange
4. Placing the Order
5. Dispatching a letter of Credit
6. Obtaining Necessary Documents
7. Customs Formalities and Clearing of Goods
8. Making the Payment
9. Closing the transactions

Cargo Storage and Retrieval Systems

They are automated systems designed to efficiently store, organize, and retrieve goods or materials in various industrial and commercial settings. These systems are particularly valuable in warehouses, distribution centres, manufacturing facilities, and logistics operations where the efficient management of inventory is crucial. The primary goals of cargo storage and retrieval systems are to optimize space utilization, improve inventory management, reduce labour costs, and enhance overall operational efficiency.

Some common types and components of cargo storage and retrieval systems are:

1. **Automated Storage and Retrieval Systems (AS/RS):** Automated Storage and Retrieval Systems (AS/RS) are advanced solutions for automating the storage and retrieval of goods in warehouses and distribution centres. They consist of specially designed storage structures equipped with robotic cranes, shuttles, or gantry robots that move items efficiently in both vertical and horizontal directions. AS/RS can handle various types of loads, including pallets and smaller items, and are controlled by sophisticated software systems that optimize storage, tracking, and order fulfilment processes.

   Key benefits of AS/RS include maximizing space utilization, increasing throughput, reducing labour costs, improving accuracy, and enhancing scalability. They come in different types to suit specific needs, such as unit-load AS/RS for larger items, mini-load AS/RS for smaller items, Vertical Lift Modules (VLMs) for vertical storage, and shuttle AS/RS using robotic shuttles for horizontal transport.

   AS/RS systems are especially valuable in industries where efficient space utilization and rapid order processing are crucial, such as automotive manufacturing, pharmaceuticals, and e-commerce fulfilment centres.
2. **Vertical Lift Modules (VLMs):** Vertical Lift Modules (VLMs) are automated storage systems that revolutionize vertical space utilization in warehouses and distribution centres. They consist of tall, vertical structures with moving trays or shelves, controlled by automated extractors. VLMs optimize storage by eliminating the need for aisles, offering high-density storage for small to medium-sized items.

   Key benefits include space efficiency, improved accuracy, increased productivity through ergonomic design, and scalability. VLMs integrate with inventory management and order fulfilment systems, streamlining operations and reducing labour costs.

   VLMs find applications in industries with parts and component storage needs, including manufacturing, automotive, aerospace, and pharmaceuticals. They provide secure and rapid access to items while maximizing vertical storage capacity, making them a valuable asset in modern warehouse management.
3. **Horizontal Carousels:** Horizontal Carousels are automated storage and retrieval systems designed to maximize space utilization and streamline the storage and retrieval of small to medium-sized items. They consist of rotating bins or shelves arranged in a circular or oval pattern. When an operator requests an item, the carousel rotates to

present the required bin to the operator at a picking station, reducing the need for manual searching and walking.

Key advantages of Horizontal Carousels include space efficiency, increased throughput, improved accuracy, and ergonomic benefits for operators. They are commonly used in e-commerce distribution centres, manufacturing facilities, and order picking operations where frequent access to a variety of items is essential.

Horizontal Carousels integrate with inventory management systems and offer rapid, controlled access to items, enhancing security and efficiency in material handling processes. Their ability to optimize storage space while providing quick and accurate item retrieval makes them a valuable asset in modern warehouse management.

4. **Vertical Carousels:** Vertical Carousels are automated storage and retrieval systems designed to optimize vertical storage space while efficiently storing, organizing, and retrieving small to medium-sized items. They feature a vertical arrangement of rotating shelves or carriers within a compact framework. When an item is needed, the Carousel precisely rotates to present the required storage bin or compartment to an operator, reducing manual labor and enhancing efficiency.

   Key advantages of Vertical Carousels include their space-saving design, increased throughput, improved accuracy, and ergonomic benefits for operators. They find applications in various industries, such as manufacturing, healthcare, and document management, where efficient storage and retrieval are essential.

   Vertical Carousels integrate with inventory management systems, providing real-time tracking and control over stored items. Their rapid and controlled item access, combined with secure features, makes them a valuable asset in modern material handling and warehousing operations, particularly in space-constrained environments.

5. **Shuttle Systems:** Shuttle Systems, part of Automated Storage and Retrieval Systems (AS/RS), are sophisticated material handling solutions designed for efficient and space-saving storage and retrieval of goods. They utilize robotic shuttles or carriers that move horizontally and vertically within a storage rack structure to transport items to and from specific storage positions.

   Key advantages of Shuttle Systems include space efficiency, high throughput capabilities, reduced labour costs, improved accuracy, flexibility, and scalability. These systems find applications in industries with high-density storage needs, including food distribution, cold storage, and e-commerce fulfilment centres.

Controlled by advanced software, Shuttle Systems provide real-time inventory management and integration with Warehouse Management Systems (WMS). They offer rapid and secure item access, contributing to security and operational efficiency. Shuttle Systems are essential components in modern material handling and logistics, helping businesses optimize storage and retrieval processes while enhancing overall productivity.

6. **Conveyor Systems:** Conveyor systems are mechanical handling solutions used across a wide range of industries to transport goods, materials, or products within facilities or along production and distribution lines. These systems employ various mechanisms, such as belts, rollers, chains, or screws, to move items along predefined paths. Conveyor systems can be simple or highly automated, depending on the application. Key types of conveyor systems include belt conveyors, roller conveyors, chain conveyors, screw conveyors, overhead conveyors, bucket conveyors, and vibrating conveyors. They find applications in manufacturing, warehousing, distribution, airports, food processing, and more, handling tasks like material handling, assembly, packaging, and order fulfilment.

   Benefits of conveyor systems include increased efficiency, reduced manual labour, consistent item movement, space optimization, and the ability to handle high volumes of items. These systems can be customized and expanded to meet specific facility needs, making them integral to modern industrial and logistics processes. Conveyor systems play a vital role in enhancing productivity and operational efficiency across industries.

7. **Automated Guided Vehicles (AGVs):** Automated Guided Vehicles (AGVs) are autonomous mobile robots designed for the automated transport of goods and materials within facilities. These versatile robots come in various types, including unit load AGVs, tugger AGVs, and forklift AGVs, tailored to different material handling tasks. AGVs navigate using a combination of sensors, cameras, and navigation systems and can be integrated with software systems for route planning and optimization.

   AGVs find applications in manufacturing, warehousing, logistics, healthcare, and other industries, streamlining material transport processes. Key benefits include increased efficiency, safety features, cost savings, scalability, and 24/7 operation. However, their implementation may require infrastructure changes and attention to safety protocols. AGVs play a pivotal role in enhancing material handling operations, contributing to improved productivity and reduced operational costs across diverse industrial settings.

8. **Warehouse Management Software (WMS):** Warehouse Management Software (WMS) is specialized software designed to optimize and automate warehouse and distribution centre operations. Key functions include inventory management, order processing, receiving, put away, picking, packing, shipping, and returns management. WMS offers advanced features like batch and lot tracking, cross-docking, multi-channel support, and advanced reporting. It integrates with other systems for seamless data flow.

Benefits of WMS include increased efficiency, improved inventory accuracy, enhanced customer service, cost savings, and regulatory compliance. Scalability and cloud-based options make it adaptable to changing business needs. WMS is essential for modern supply chain management, ensuring efficient warehouse operations and the smooth flow of goods through the supply chain.

Types of Air Cargo

With a solid understanding of the importance of air cargo and its role in the supply chain, let's explore the nine distinct types of air cargo. We will also delve into their unique features and uses in various industries.

1. **General Cargo**

As the backbone of the air freight service industry, general cargo is a versatile and vital category. It covers a wide range of goods and products. This cargo can handle anything to do with electronics, clothing, machinery parts, medical supplies, and more. General cargo encompasses items that do not require specific handling or storage conditions during transportation.

Manufacturers, retailers, and businesses across numerous sectors depend on general cargo air freight services to transport their goods quickly and efficiently.

While specific restrictions and regulations may apply depending on the nature of the items, general cargo is typically more straightforward in terms of packaging and handling requirements. This category allows for streamlined operations, contributing to its substantial air cargo market share.

2. **Special Cargo**

Special cargo refers to goods that have unique requirements for handling, storage, or transportation. This category covers a diverse range of items, such as fine art, pharmaceuticals, sensitive equipment, or even live stage props for entertainment events.

The unique nature of these goods necessitates specialized care and attention, often involving additional security measures, temperature controls, or custom-designed containers.

Companies whose cargo includes museums and galleries, pharmaceutical companies, and event organizers rely on special cargo services to transport their valuable and delicate items safely and securely.

Air cargo providers offering special cargo services are well-equipped to handle the stringent regulations and standards associated with these goods. This ensures compliance and minimizes risks during transportation.

3. **Live Animals**

This type of cargo transports our furry, feathered, or four-legged friends through the skies. The specialized sector handles various creatures, from pets and farm animals to rare species destined for zoos and conservation centres. This way, they all receive the utmost care during their journey.

The live animal air cargo sector is essential in fostering connections across the globe and providing a reliable, humane way to transport the planet's diverse inhabitants. Pet owners, breeders, farmers, and wildlife conservationists in the United States entrust live air freight with more than 2 million animals annually.

To guarantee the welfare and safety of every living passenger, air cargo providers follow strict guidelines laid out by the International Air Transport Association (IATA) in Live Animal Regulations.

4. **Dangerous or Hazardous Cargo**

The hazardous cargo category includes goods that pose a potential health, safety, or property risk during transportation. These items require special attention and handling to ensure the safety of air cargo personnel and cargo aircraft.

Air freight shipping of such items is subject to stringent oversight. The IATA provides the Dangerous Goods Regulations (DGR), the global standards for transporting hazardous materials by air. These types of cargo fall into nine categories, each with its own set of regulations stipulating packaging, labelling, documentation requirements, and guidelines for handling and storage:

- Explosives
- Flammable Gasses
- Flammable Liquids
- Flammable Solids
- Oxidizing
- Toxic and Infectious
- Radioactive
- Corrosives

Miscellaneous, such as cargo requiring an elevated temperature, magnetized materials, and microorganisms. Businesses that deal with chemicals, pharmaceuticals, and other industries requiring hazardous materials are the primary users of dangerous cargo air freight service.

5. **High-value or Fragile cargo**

The high-value or fragile cargo category consists of items with significant monetary value or that are prone to damage during transportation. Businesses and individuals shipping goods such as:

- Fine art
- Luxury goods
- High-end electronics
- Delicate musical instruments
- Precious gems or metals

All these require specialized handling and strong security measures to ensure their safe and secure transit.

Air cargo services provide these enhanced security measures, such as surveillance, secure storage facilities, and in some cases, a dedicated cargo escort. They also employ specialized

packaging materials and handling techniques. This protects fragile items from damage during transport.

High-value or fragile cargo makes up a smaller portion of total air cargo transport than general cargo. Therefore it remains an essential service for numerous industries and clients seeking secure and reliable transportation for their valuable or delicate items.

6. Perishable Cargo

When it comes to perishable cargo, time is of the essence. Because they have a limited shelf life, these goods require specialized air cargo transport. It is essential for perishable cargo to reach its destination quickly and in the best possible condition. Fresh fruits, flowers, meats, seafood, and even temperature-sensitive pharmaceuticals are delicate items that fall under this category.

Perishable Cargo Regulations are in place to ensure the safe transportation of perishable cargo. Guidelines cover everything from proper packaging and temperature control to transit times.

Although perishable cargo is a smaller slice of the air cargo shipping pie, it's essential for industries that rely on the prompt and efficient transportation of goods with a limited lifespan. For example, Africa's burgeoning floriculture industry relies on specialized air cargo services to ensure the quality of its products.

7. Temperature Controlled Cargo

Temperature-controlled cargo is a game-changer for businesses that rely on precise temperature conditions during transportation. This specialized category is designed to maintain a consistent environment for goods sensitive to temperature fluctuations. The goal is that the goods arrive at their destination in perfect condition.

Industries that deal with temperature-sensitive goods, such as pharmaceuticals, chemicals, and food processing, rely heavily on temperature-controlled air freight services. These services employ advanced temperature-controlled containers and monitoring systems to maintain a consistent climate throughout the journey. By doing so, the cargo is protected from potential damage.

The IATA Temperature Control Regulations provide guidelines for packaging, temperature management, and handling procedures.

8. Mail Cargo

The mail cargo segment plays a pivotal role in the worldwide postal and parcel delivery network. It guarantees the prompt delivery of letters, documents, and packages to their intended destinations. Air freight handles approximately 328 billion letters and 7.4 billion packages annually, making mail cargo the most significant percentage of air shipment loads.

This air cargo category comprises personal correspondence and e-commerce purchases as well as essential business paperwork and small parcels, all requiring efficient transportation to bridge the global gap between people and businesses.

Users of mail cargo air freight services primarily include postal authorities, online retailers, and courier firms. These services collaborate closely with customs agencies to ensure compliance with international shipping regulations, which cover restrictions on specific items, weight constraints, and proper documentation.

9. Human Remains, Tissue, and Organ Cargo

Air transport is mission-critical in the delicate realm of human remains, tissue, and organ cargo. This category deals with transporting human remains for repatriation or funeral purposes. It also ships life-saving tissues and organs for transplants. Given the sensitive nature of these items, it is of the utmost importance that they are transported securely, respectfully, and efficiently.

The primary users of this specialized air cargo service include funeral homes, medical institutions, and organ transplant organizations. These services adhere to strict regulations and guidelines to ensure the ethical and safe transport of human remains, tissues, and organs. Relevant authorities, such as the World Health Organization (WHO) and IATA, provide comprehensive guidelines regarding the packaging, documentation, and handling procedures required for this type of cargo.

Organ procurement organizations (OPOs) are also working with cargo and passenger airlines to implement the UNOS Organ Tracking System. This collaboration improves the in-flight tracking system for donated organs in transit. As of December 2022, they have successfully tracked 7,000 organ shipments while providing up-to-the-minute information from loading to landing.

Master Operating Plan (MOP)

The Master Operating Plan (MOP) describes the key processes and sub-processes involved in transporting air cargo from shipper to consignee in a systematic and harmonized manner. It provides the air cargo supply chain with the first, industry-endorsed, standard description of the end-to-end process for transporting cargo by air.

As a result, the MOP comprises 19 main processes and 78 sub-processes split into five categories of activities as follows:

- Origin Forwarder
- Origin Carrier
- Transport Carrier
- Destination Carrier
- Destination Forwarder

The primary objective for air cargo acceptance and handling is to ensure that consignments are ready for carriage in compliance with operator and IATA regulations, as well as with export and import rules of the countries through which the cargo will transit. In general, all items to be transported using commercial aircraft must pass through an acceptance process. There are certain procedures that must be followed regardless of the type of cargo. Other procedures may only apply to certain types of cargo.

The section below will provide you a quick overview of some of the key steps of the MOP.

1. **Booking & Planning Shipments**

The process of cargo handling begins with booking and planning shipments, there is much to be done before the shipment even leaves the facility. Having a solid plan of action allows for smooth booking and prevents fewer problems further down the chain of events. It is necessary to follow the steps below to book your shipment properly. These activities also include the steps handled by freight forwarders as listed below:

- Receive shippers' requests and check the security status
- Receive shipper freight information
- Plan the routing-direct or consolidation
- Request capacity against forwarder or carrier inventories

- Confirm capacity
- Arrange pick up of freight
- Picked up from the shipper

The next step in logistics is how air cargo is received and accepted for transport. This is a multi-step process that includes various stockholders including trucking companies, as well as cargo and ground handling service providers amongst others.

Throughout the shipment process, safety remains a priority for all parties of the air cargo supply chain. For instance, it's important to ensure clear and correct labelling and identification of packages. In addition, the packages themselves must be suited to the content and be able to protect the goods from any damage.

2. Receive Shipments into Carrier Domain

Once the freight forwarding truck arrives at the carrier's domain and the truck driver has informed the Cargo Handling Agent of their arrival, the carrier domain can receive the goods. They should have received the following information in advance, which is why filing electronically is always recommended:

- Electronic air waybill information
- Electronic house waybill information for consolidated shipments
- Truck number and type (if available)
- Estimated arrival time (if available)
- Security screening needs (if known/available)

Once the information has been received, and the truck has arrived, an unloading slot and position will be assigned to the driver. Different slots are given according to needs, such as dangerous goods, live animals, ULDs, healthcare products, and more.

3. Accept Shipments as Ready for Carriage

When accepting shipment as ready for carriage, airport cargo and ground handling personnel must take several steps to meet the requirements to ship goods by air. First, they must verify if the shipments are security cleared. Then they must perform a ready-for carriage check. This entails verifying that all the information aligns with the actual shipment and ensuring all embargoes and operational restrictions are applied. Once everything has been checked, the

information is validated against the booking and updated. The primary objective is to ensure the consignments are in compliance with

- Carrier requirements
- Local export rules and regulations
- Rules and regulations of the transit airport(s) and air spaces (if any)
- Import regulations of the destination country

4. Prepare Cargo for Flight

After accepting shipments ready for carriage, airport cargo and ground handling personnel can prepare the air cargo for flight. The goods in transit must be received and security cleared once again. Goods left on the aircraft that are in transit are considered transit cargo. Cargo and ground handling services must give this transit cargo security checks, including x-ray and Explosive Trace Detection (ETD) screening. A detailed exam of the e-AWB, integrity of the cargo, and piece count is made. Once the pre-plan details are received from the carrier, a build-up plan must be prepared, which indicates what air cargo is to be built for flight, and the information is sent to the warehouse.

5. Send Shipments to Flight

Now it is time to move the loaded ULDs to a secure flight holding area while being mindful of all sensitive information such as temperature-controlled and dangerous goods. Ensuring no flights are delayed, the ULDs can be lined up in order, if it is known, to prepare for ramp transportation. All ramp safety protocols must be followed. To avoid accidents being mindful of all ground support equipment during the process of loading and unloading is necessary. This is why proper training in IATA's rules and regulations is imperative for all cargo and ground handling personnel.

At this time, the control of the air cargo passes from the warehouse operator to the ramp handler. The transport of goods from cargo terminal to aircraft is a multi-step process best lined out in the IATA Cargo Handling Manual (ICHM). After following each of those steps explicitly, you would load the aircraft according to the load plan, making a note of arrangements for special cargo. Once the aircraft is loaded, any discrepancies must be addressed by updating the electronic Flight Manifest. It is now that the aircraft can depart, but the cargo loading procedure is not complete without mailing the flight manifest, loading, and carriage information.

Airport Terminal Building

Coimbatore international airport has one terminal that handles both domestic and international flight operations.

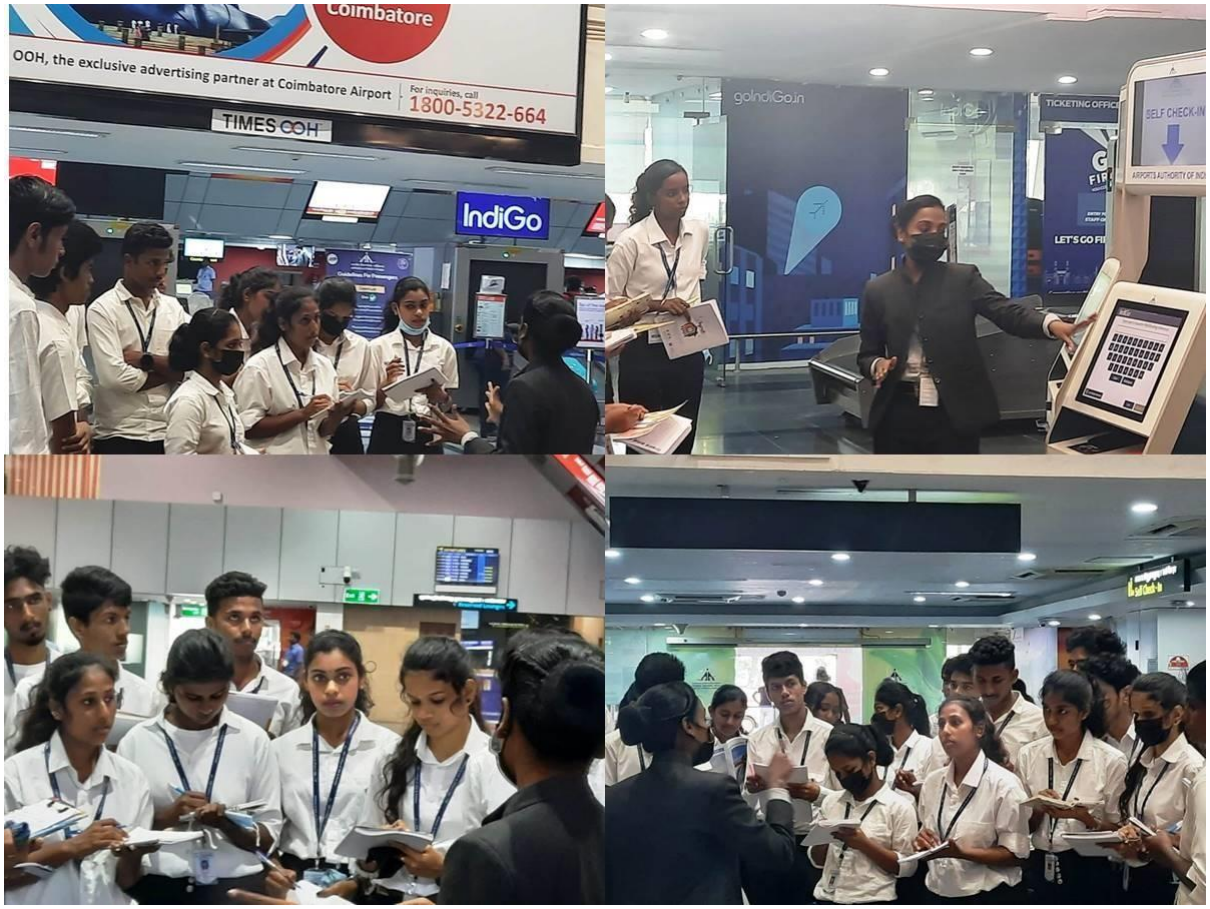
- In 2008, the airport expanded to accommodate larger flight operations and also increased passenger capacity.
- Besides the single passenger terminal, Coimbatore airport also has a dedicated cargo terminal

Functions of Airport Terminal Building

Airport terminal buildings serve as crucial hubs for passenger and cargo handling, offering various functions to ensure smooth and efficient air travel.

These functions include:

1. **Check-In and Ticketing:** Passengers check in for their flights, receive boarding passes, and drop off their luggage at check-in counters or self-service kiosks.



2. **Security Screening:** Security checkpoints are in place to screen passengers, their carry-on items, and checked baggage for prohibited items, ensuring the safety of air travel.
3. **Baggage Handling:** Baggage handling systems transport checked luggage from check-in counters to the aircraft and vice versa, as well as to baggage claim areas upon arrival.
4. **Immigration and Customs:** International terminals have immigration and customs facilities to process arriving and departing international passengers. Passport control, visa checks, and customs inspections are carried out here.
5. **Boarding Gates:** Passengers wait in gate areas until their flight is called for boarding. Airlines use gate counters to manage the boarding process.
6. **Airport Lounges:** Premium passengers, frequent flyers, and those with certain credit cards may access airport lounges, which offer comfortable seating, refreshments, and business services.
7. **Retail and Dining:** Airports offer a wide range of shops, boutiques, and restaurants for passengers to shop, dine, and relax before or between flights.
8. **Information Desks:** Information desks and kiosks provide passengers with flight information, directions, and assistance with airport services.
9. **Ground Transportation:** Terminals connect passengers to various ground transportation options, including taxis, buses, shuttles, rental cars, and sometimes even trains.
10. **Aircraft Boarding and Deplaning:** Jet bridges, stairs, or buses facilitate the boarding and deplaning of passengers. Airlines and ground staff manage this process.
11. **Baggage Claim:** Passengers collect their checked luggage from baggage claim carousels or designated areas after arriving at their destination.
12. **Lost and Found:** Lost items can be reported and retrieved at the airport's lost and found department.
13. **Airport Information:** Information screens, kiosks, and announcements provide real-time flight updates, gate changes, and general airport information.
14. **Medical Services:** Airport terminal buildings often have first aid stations or medical facilities to provide assistance in case of medical emergencies.
15. **Customs Declarations:** International travellers fill out customs declarations and undergo customs inspections before exiting the airport.
16. **Special Assistance:** Airports offer assistance to passengers with reduced mobility or special needs, including wheelchair service, accessible facilities, and dedicated assistance personnel.

17. **VIP Services:** Some airports provide VIP services for high-profile passengers, celebrities, and government officials, including expedited security and immigration procedures.
18. **Airlines and Ticketing Offices:** Terminal buildings house airline offices where passengers can purchase tickets, make reservations, or seek assistance with travel-related matters.
19. **Meeting and Conference Facilities:** Some airports offer meeting rooms and conference facilities for business travellers.
20. **Security and Police:** Airport terminals have a visible security presence, including airport police and security personnel, to ensure the safety and security of passengers and airport property.
21. **Environmental and Sustainability Initiatives:** Some modern terminals incorporate green building practices, energy-efficient systems, and sustainable design to reduce their environmental impact.

Airport terminal buildings play a pivotal role in the passenger journey, providing essential services and facilities to ensure a safe, comfortable, and efficient travel experience for all passengers.

Passenger check-in and Boarding procedures

These are essential steps in air travel that ensure passengers are properly documented, their luggage is accounted for, and they are safely boarded onto their flights. Here are the typical procedures for passenger check-in and boarding:

1. **Passenger Check-In**

- **Arrival at the Airport:** Passengers are advised to arrive at the airport well in advance of their flight's departure time. Airlines often provide guidelines for when to arrive, which can vary depending on factors like flight type and destination.
- **Check-In Counter:** Passengers can approach the airline's check-in counter, where airline staff-assist with the check-in process. Alternatively, many airlines offer self-service kiosks for passengers who prefer to check in on their own.
- **Provide Identification and Flight Information:** Passengers are required to present identification, such as a passport, driver's license, or government-issued ID, along with

their flight booking information or ticket. International travellers must also present their passport, visa, and any required travel documentation.

- **Luggage Check:** Passengers checking baggage provide their luggage at this stage. The airline staffs weigh the luggage, attach a baggage tag, and send it to be loaded onto the aircraft.
- **Boarding Pass:** After successful check-in, passengers receive a boarding pass, either in physical form or electronically on their mobile devices, which contains essential flight information, including the departure gate, boarding time, and seat assignment.
- **Security Screening:** Passengers proceed to the security checkpoint, where they undergo security screening. This process includes passing through metal detectors, having carry-on items screened through X-ray machines, and presenting identification and boarding passes for verification.

2. **Boarding Procedures**

- **Gate Arrival:** Passengers should arrive at the departure gate well before the boarding time indicated on their boarding pass.
- **Boarding Announcement:** Airlines make boarding announcements, typically beginning with pre-boarding for passengers with special needs, followed by priority boarding for premium passengers, and then general boarding by rows or groups.
- **Boarding Pass and Identification Check:** Passengers present their boarding passes and identification to airline staff or automated boarding gate machines for verification.
- **Security screening at the Gate:** Some airports perform additional security checks at the gate, such as random bag checks or additional screening for selected passengers.
- **Boarding the Aircraft:** Passengers enter the aircraft via jet bridges, mobile stairs, or buses, depending on the airport and aircraft configuration. Flight attendants greet passengers at the aircraft door and direct them to their assigned seats.
- **Stowing Carry-On Items:** Passengers are responsible for stowing their carry-on items in the overhead compartments or under the seat in front of them.
- **Seating:** Passengers should locate and occupy their assigned seats as indicated on their boarding passes.
- **Safety Briefing:** Prior to departure, the cabin crew provides safety instructions and a safety briefing to all passengers. Passengers are required to pay attention and follow crew instructions.

- **Taxi and Take-off:** The aircraft taxis to the runway and takes off, beginning the flight to the destination.

Passenger check-in and boarding procedures are designed to ensure a smooth and safe travel experience for all passengers. Passengers are advised to follow airline and airport guidelines, be prepared with the necessary documentation, and arrive with ample time before their flight to avoid any potential delays or issues.

Security measures and protocols

Inside terminal buildings at airports are of utmost importance to ensure the safety of passengers, airport personnel, and the overall aviation system. These measures are designed to prevent security threats, such as terrorism and unauthorized access, from compromising airport operations. Here are common security measures and protocols inside terminal buildings:

1. **Access Control:** Access to the terminal building is controlled through security checkpoints. Passengers, employees, and visitors must go through these checkpoints to enter secure areas. Security personnel or automated systems verify identification and travel documents before allowing entry.
2. **Security Screening:** Passengers and their carry-on items undergo thorough security screening at checkpoints. This includes metal detectors, X-ray machines for bags, and body scans. Security officers may conduct random additional screening of passengers and their belongings.
3. **Prohibited Items:** Passengers are prohibited from carrying certain items in their carry-on luggage, such as weapons, sharp objects, flammable materials, and liquids in containers larger than 3.4 ounces (100 millilitres). Prohibited items are confiscated, and passengers may face penalties or delays.
4. **Checked Baggage Screening:** Checked baggage is screened using sophisticated technology, such as Explosive Detection Systems (EDS), which can detect explosives and dangerous materials. Baggage reconciliation processes ensure that checked bags are matched with passengers on the same flight.
5. **Behavior Detection:** Security personnel are trained to identify suspicious behavior or individuals who may pose a security risk. Behavioral analysis complements other security measures.
6. **Surveillance and CCTV:** Terminal buildings are equipped with surveillance cameras and Closed-Circuit Television (CCTV) systems to monitor activities in public and

secure areas. Surveillance footage is continuously reviewed to detect and respond to security incidents.

7. **Airside Security:** Access to aircraft and airport operations areas (airside) is strictly controlled. Only authorized personnel with proper credentials are allowed access. Perimeter fencing and security patrols are in place to prevent unauthorized access to aircraft and restricted areas.
8. **K-9 Units:** Airport security often employs K-9 units trained to detect explosives and drugs. These dogs assist in random checks and security sweeps.
9. **Emergency Response:** Terminal buildings are equipped with emergency response plans and communication systems to handle security incidents, natural disasters, or other emergencies. Security personnel are trained in responding to threats and coordinating with law enforcement agencies.
10. **Random Security Measures:** Airports may implement random security measures, such as additional searches, to deter potential threats.
11. **Security Personnel:** Trained security personnel, often in uniform or plainclothes, are stationed throughout the terminal to respond to security concerns and assist passengers.
12. **Travel Document Verification:** Airlines and security personnel verify the authenticity of passengers' travel documents, including passports, visas, and boarding passes.

These security measures and protocols are implemented in accordance with international aviation security standards and regulations. Passengers are encouraged to cooperate with security personnel, arrive at the airport with sufficient time for security procedures, and be aware of and compliant with all security regulations to ensure the safety and efficiency of air travel.

Facilities and Amenities of Airport

Airports around the world offer a wide range of facilities and amenities to enhance the travel experience for passengers. These amenities are designed to provide comfort, convenience, and entertainment during layovers and long journeys. Here are some common facilities and amenities available to travellers at airports:

1. **Duty-Free and Retail Shops:** Airports have a variety of duty-free and retail stores selling clothing, electronics, souvenirs, cosmetics, and more. Passengers can shop for last-minute gifts or personal items.

2. **Restaurants and Cafes:** Airport terminals feature a diverse selection of dining options, from fast-food outlets to fine dining restaurants, serving both local and international cuisine. Vegetarian, vegan, and dietary-friendly options are often available.
3. **Bars and Lounges:** Travellers can relax and unwind at bars and lounges serving a range of beverages, including cocktails, wine, and craft beers.
4. **Airport Lounges:** Premium passengers, frequent flyers, and those with certain credit cards can access airport lounges offering comfortable seating, complimentary snacks, beverages, Wi-Fi, and business services.
5. **Airport Hotels:** Some airports have on-site hotels or nearby accommodations, making it convenient for travellers with long layovers or early morning flights.
6. **Spa and Wellness Facilities:** Wellness centers, massage parlors, and spa services provide opportunities for relaxation and self-care.
7. **Charging Stations:** Charging stations and power outlets are available to charge electronic devices such as phones, laptops, and tablets.
8. **Wi-Fi and Internet Kiosks:** Free or paid Wi-Fi services are typically available throughout the terminal, along with internet kiosks for those without their devices.
9. **Children's Play Areas:** Kid-friendly spaces with play equipment and entertainment options are provided for families traveling with children.
10. **Pet Relief Areas:** Airports often have designated pet relief areas for travellers with service animals or pets.
11. **Business Centers:** Business travellers can access facilities equipped with computers, printers, and fax machines to catch up on work.
12. **Currency Exchange and ATMs:** Currency exchange desks and ATMs are available for foreign currency exchange or obtaining local currency.
13. **Baggage Services:** Services such as luggage storage, baggage wrapping, and lost and found facilities assist passengers with their baggage-related needs.
14. **Medical Services:** Medical clinics or first aid stations offer assistance to travellers in case of health issues or emergencies.
15. **Transportation Services:** Airports have transportation counters or kiosks for booking taxis, shuttles, or other ground transportation options.
16. **Information Desks:** Information desks and kiosks provide real-time flight updates, directions, and assistance with airport services.

17. **Art and Cultural Exhibitions:** Some airports showcase art installations, exhibitions, or cultural displays to create a more visually appealing and culturally enriching environment.
18. **Shower Facilities:** Passengers on long layovers can freshen up in shower facilities available at some airports.
19. **Quiet Zones:** Quiet areas with comfortable seating and a peaceful ambiance allow passengers to rest or work in a tranquil environment.
20. **Entertainment and Gaming:** Some airports offer entertainment zones with video games, arcade machines, or movie theatres to keep passengers entertained.
21. **Library and Reading Areas:** Reading enthusiasts can access libraries or designated reading spaces with a selection of books and magazines.
22. **Free Shuttle Services:** Airports with multiple terminals may provide free shuttle services to help passengers navigate the airport grounds.

These facilities and amenities vary from airport to airport, and larger international airports often offer a broader range of services. Travellers are encouraged to check the specific offerings and services available at their departure or arrival airport to make the most of their airport experience.

Air Traffic Control (ATC)

Air Traffic Control (ATC) is a comprehensive system and set of services responsible for ensuring the safe and organized flow of air traffic in and around airports and across airspace. This crucial system prevents collisions, offers guidance to pilots, and plays a fundamental role in aviation safety. Key components and functions of ATC include airspace management, aerodrome control, ground control, local control, approach and departure control, en route control, air traffic flow management, communication, radar and surveillance, weather monitoring, emergency response, conflict resolution, coordination between ATC units, clearances issuance, training and certification, and automation. ATC is essential for preventing accidents and ensuring the efficient movement of aircraft, passengers, and cargo in the aviation industry.

Importance of ATC in Airport

Air Traffic Control (ATC) is of paramount importance at airports for several critical reasons:

Safety: The primary role of ATC is to ensure the safety of aircraft, passengers, and crew. ATC controllers monitor aircraft movements, provide clearances, and prevent collisions, both in the air and on the ground.

Collision Avoidance: ATC maintains safe separation between aircraft, preventing mid-air collisions and runway incursions, which are among the most significant safety concerns in aviation.

Orderly Operations: ATC helps maintain order and efficiency at airports by coordinating the take-off, landing, and taxiing of aircraft. This ensures smooth and predictable operations, minimizing delays and congestion.

Efficiency: ATC contributes to the efficient use of airspace and runways, helping airlines optimize flight routes and schedules. This efficiency reduces fuel consumption and emissions, benefiting the environment and the industry's economic viability.

Minimized Delays: ATC helps manage air traffic flow, particularly during adverse weather conditions or high traffic volume. By providing guidance and spacing aircraft, ATC minimizes delays and disruptions.

Emergency Response: In cases of emergencies, such as engine failures, medical issues, or security threats, ATC plays a crucial role in coordinating responses, providing assistance, and guiding aircraft to safety.

Weather Monitoring: ATC monitors weather conditions in real-time, providing pilots with crucial information about weather-related hazards like storms, turbulence, and icing. This information enables safe route adjustments.

Coordination: ATC units at airports coordinate with each other and with en route controllers to ensure seamless transitions for aircraft traveling between regions and airports.

Noise Abatement: ATC controllers may provide guidance to pilots to follow noise abatement procedures, minimizing the impact of airport operations on nearby communities.

Capacity Optimization: ATC helps maximize the use of available airport capacity, reducing the need for costly airport expansions and infrastructure upgrades.

Training and Certification: ATC personnel undergo rigorous training and certification processes to ensure they possess the necessary knowledge and skills to manage air traffic safely and efficiently.

Automation: ATC systems increasingly employ automation and advanced technologies to enhance safety and efficiency.

ATC is essential for ensuring safe, efficient, and orderly aviation operations at airports. It plays a vital role in preventing accidents, reducing delays, optimizing airspace and runway usage, and responding to emergencies. Without ATC, the aviation industry would face significant safety and operational challenges, impacting both passengers and the broader economy.

Communication and Navigation System (Primary Radar, Secondary Radar, and Very High Frequency Communication)

Communication and navigation systems are essential components of the aviation industry, playing a critical role in ensuring safe and efficient air travel. These systems enable communication between aircraft and air traffic control (ATC) as well as navigation through the airspace.

1. **Communication Systems**

Very High Frequency (VHF) Radios: VHF radios are the primary means of communication between aircraft and ATC. They operate in the VHF frequency band and are used for voice communication. Pilots use VHF radios to transmit flight information, receive instructions, and report their positions.

High-Frequency (HF) Radios: HF radios are used for long-distance communication, especially over oceanic and remote areas where VHF coverage is limited. They provide reliable communication for transoceanic flights.

Satellite Communication: Satellite communication systems, such as SATCOM, enable aircraft to communicate with ground stations and other aircraft via satellites. They are particularly useful for over-the-pole and remote-area flights.

Data Link Communication: Data link systems allow for the exchange of data and messages between aircraft and ATC. This includes text-based messages, weather updates, and digital clearances, reducing voice communication congestion.

Emergency Communication: Emergency communication systems, including transponders, ELT (Emergency Locator Transmitter), and distress frequencies, are crucial for signaling distress or emergencies and facilitating search and rescue operations.

2. **Navigation Systems**

Global Positioning System (GPS): GPS is a satellite-based navigation system that provides accurate position, velocity, and timing information to aircraft. It is the primary navigation tool for both en route and terminal navigation.

Inertial Navigation Systems (INS): INS relies on accelerometers and gyroscopes to calculate an aircraft's position based on its previous known position and velocity. It is used as a backup or supplementary navigation system.

Instrument Landing System (ILS): ILS is a precision landing aid that helps aircraft align with the runway during the approach and landing phases, especially in low-visibility conditions.

VOR/DME: VOR (VHF Omni-directional Range) and DME (Distance Measuring Equipment) are ground-based navigation aids that provide aircraft with position and distance information, aiding in navigation along airways.

ADF (Automatic Direction Finder): ADF is a radio navigation system that determines the direction of an NDB (Non-Directional Beacon) station, providing a bearing to navigate by.

RNAV (Area Navigation): RNAV systems allow for more flexible and precise navigation, enabling aircraft to follow predefined flight paths and waypoints, including GPS-based routes.

Ground-Based Augmentation System (GBAS): GBAS enhances the accuracy of GPS signals, particularly during precision approaches at airports.

TCAS (Traffic Collision Avoidance System): TCAS provides traffic alerts and collision avoidance advisories to help aircraft avoid potential mid-air collisions.

Terrain Awareness and Warning System (TAWS): TAWS provides alerts and warnings to pilots when the aircraft is approaching terrain or obstacles, enhancing safety during low-altitude operations.

Navigation Displays: Aircraft are equipped with navigation displays, such as Electronic Flight Instrument Systems (EFIS) and Multi-Function Displays (MFDs), that provide pilots with real-time navigation information.

Effective communication and navigation systems are fundamental to aviation safety, efficiency, and precision. They enable pilots to navigate accurately, communicate with ATC, receive critical information, and respond to emergencies, ensuring that flights are conducted safely and according to established procedures.

Primary RADAR

Primary radar, often referred to as primary surveillance radar (PSR) or simply radar, is a technology used in aviation and various other fields to detect and track the position of objects in the surrounding airspace or environment. Primary radar operates by emitting radio waves and detecting the reflected signals (echoes) when those waves bounce off objects.

Characteristics of Primary Radar are

1. **Radio Waves:** Primary radar systems emit radio waves, typically in the microwave or radio frequency bands, at a specific frequency.
2. **Echo Detection:** When the emitted radio waves encounter an object (such as an aircraft), they bounce back as echoes. The radar antenna receives these echoes.
3. **Range Measurement:** By measuring the time it takes for the emitted radio waves to travel to the object and return as echoes, the radar system calculates the distance or range to the object.
4. **Azimuth (Direction) Determination:** Radar systems can also determine the azimuth or direction of the detected object by mechanically or electronically steering the radar antenna and measuring the angle at which the echoes are received.

5. **Speed Measurement:** By analyzing changes in the frequency of the echoes (Doppler shift), primary radar can estimate the speed of the detected object.
6. **Non-Cooperative:** Primary radar is "non-cooperative" because it can detect and track objects without relying on the objects themselves having any specialized transponders or equipment.

Uses of Primary Radar in Aviation

1. **Air Traffic Control (ATC):** Primary radar is a critical tool for air traffic control. It helps controllers detect the presence of aircraft in their airspace, determine their positions, and monitor their movements.
2. **Secondary Surveillance Radar (SSR) Complement:** In ATC, primary radar is often used in conjunction with secondary surveillance radar (SSR). SSR relies on transponders aboard aircraft to provide additional information, such as the aircraft's identity (Mode A), altitude (Mode C), and other data (Mode S).
3. **Primary Radar Coverage:** Primary radar provides coverage in areas where secondary radar coverage may be limited or unavailable. It is particularly valuable for detecting non-cooperative or transponder-equipped aircraft.
4. **Emergency Search and Rescue:** Primary radar can be used in search and rescue operations to locate missing aircraft or ships.
5. **Weather Radar:** Weather radar systems, which use a form of primary radar, are used to monitor and track weather patterns, precipitation, and severe weather events.
6. **Military Applications:** Primary radar is also used in military applications for surveillance, target tracking, and defense purposes.

Primary radar provides essential information about the presence and position of objects; it typically lacks detailed information about the identity, altitude, and other parameters of aircraft. Secondary surveillance radar (SSR), which relies on aircraft transponders, complements primary radar by providing additional data for air traffic control and aircraft identification.

Secondary Surveillance RADAR (SSR)

Secondary Surveillance Radar (SSR) is a crucial technology used in aviation and air traffic control to complement primary radar and provide additional information about aircraft in the airspace. SSR relies on transponders installed on aircraft to transmit specific data to ground-based radar systems.

Characteristics of SSR are

1. **Transponder-Equipped Aircraft:** SSR relies on aircraft being equipped with a transponder, which is a specialized electronic device installed on board. The transponder responds to SSR radar signals with specific data.
2. **Interrogation-Response System:** SSR operates on an "interrogation-response" principle. Ground-based SSR radar systems send out interrogation signals, and transponders on aircraft respond to these signals.
3. **Data Transmission:** The aircraft's transponder transmits data in response to SSR interrogations. This data includes the aircraft's unique identification code (Mode 3/A), altitude (Mode C), and, in the case of Mode S transponders, additional data such as aircraft type and flight identification (Mode S).
4. **Identification Codes:** The Mode 3/A code, also known as the squawk code, is a four-digit numeric code assigned to each aircraft for identification purposes. Air traffic control assigns squawk codes to aircraft as part of the flight plan.
5. **Altitude Reporting:** Mode C transponders report the aircraft's pressure altitude, allowing air traffic controllers to determine the aircraft's altitude above sea level. This information is used to ensure safe vertical separation between aircraft.
6. **Enhanced Surveillance (Mode S):** Mode S transponders provide more detailed and selective data exchange between the aircraft and ground stations, allowing for improved tracking and communication capabilities. Mode S can also facilitate additional services like Traffic Information Services (TIS-B) and Traffic Collision Avoidance System (TCAS).

Functions and Uses of SSR

1. **Aircraft Identification:** SSR provides a means of positively identifying aircraft in radar coverage. The unique squawk code associated with each aircraft aids in tracking and managing air traffic.
2. **Altitude Reporting:** SSR enables the reporting of aircraft altitude, which is essential for maintaining vertical separation between aircraft at different altitudes. This information is critical for air traffic control in preventing mid-air collisions.
3. **Enhanced Surveillance:** Mode S transponders, a subset of SSR, provide more detailed information about aircraft, including aircraft type and flight identification. This enhances air traffic management and surveillance capabilities.

4. **Traffic Information Services:** Mode S transponders can receive and display traffic information from other nearby aircraft (TIS-B) to enhance situational awareness for pilots.
5. **Traffic Collision Avoidance System (TCAS):** TCAS uses SSR data from nearby aircraft to provide collision avoidance advisories to flight crews, helping pilots take evasive action to prevent mid-air collisions.
6. **Airport Surface Surveillance:** SSR can also be used for surface surveillance at airports, providing controllers with information about the movement of aircraft and vehicles on runways and taxiways.
7. **Search and Rescue:** In emergency situations, SSR can assist in locating missing aircraft by tracking their last known positions.

SSR, in conjunction with primary radar and other communication systems, is a critical component of air traffic control, helping ensure the safe and efficient movement of aircraft in controlled airspace. It provides valuable data that enhances situational awareness for air traffic controllers and flight crews, contributing to aviation safety.

Very High Frequency (VHF) communication

Very High Frequency (VHF) communication is a widely used form of radio communication in the aviation industry, as well as in various other sectors. VHF communication systems operate within the VHF radio frequency band, typically in the range of 118.000 to 136.975 MHz for air traffic communication.

Aspects of VHF Communication are

1. **Frequency Band:** VHF communication in aviation primarily operates in the VHF band, specifically in the frequency range of 118.000 to 136.975 MHz
2. **Line-of-Sight:** VHF radio waves travel in a line-of-sight fashion, meaning they follow a straight path and do not bend around the curvature of the Earth. As a result, VHF communication is limited to relatively short distances, typically within a range of about 200 miles (320 kilometers).
3. **Voice Communication:** VHF radios are used for voice communication betweenaircraft and air traffic control (ATC) facilities, including control towers, approach anddeparture controllers, and en route centers. Pilots and controllers communicate using voice transmissions.

4. **Aircraft Transceivers:** Aircraft are equipped with VHF transceivers, which are capable of both transmitting and receiving VHF radio signals. These transceivers allow two-way communication between aircraft and ground stations.
5. **Frequencies:** VHF frequencies are allocated for specific purposes in aviation. For example, frequencies in the range of 118.000 to 121.975 MHz are typically used for communication between aircraft and ATC, while frequencies from 122.000 to 123.000 MHz are often used for air-to-air communication.

Applications of VHF Communication in Aviation

1. **Air Traffic Control (ATC):** VHF communication is the primary means of communication between pilots and air traffic controllers. Pilots use VHF radios to request clearances, report positions, receive instructions, and communicate critical flight information.
2. **Airport Operations:** VHF communication is essential for coordinating aircraft movements on the ground at airports. It facilitates communication between ground control, tower control, and aircraft on taxiways and runways.
3. **En Route Communication:** Aircraft flying at cruising altitudes use VHF communication to stay in contact with en route air traffic control centres. This communication ensures the safe separation and management of aircraft in the airspace.
4. **Emergency Communication:** VHF radios are used for emergency communication, allowing pilots to declare emergencies, seek assistance, and communicate critical information during emergency situations.
5. **Air-to-Air Communication:** Pilots can also use VHF radios to communicate directly with other nearby aircraft for purposes such as traffic advisories and coordination.
6. **Navigation and Approach:** VHF navigation aids, such as VHF Omni-directional Range (VOR) stations, provide radio signals for aircraft navigation. VORs are used for precision instrument approaches and airway navigation.
7. **Air Traffic Services:** VHF communication is a fundamental component of air traffic services, enabling the safe and orderly management of air traffic in controlled airspace and at airports.

VHF communication is a reliable and critical component of aviation, ensuring that pilots and air traffic controllers can maintain constant and clear communication, contributing to the safety and efficiency of air travel.

Airspace Management

Airspace management is a critical aspect of aviation that involves the systematic organization, control, and regulation of the airspace to ensure the safe and efficient flow of air traffic. It encompasses a range of activities and procedures aimed at minimizing conflicts, ensuring separation between aircraft, and optimizing the utilization of airspace.

Elements of Airspace Management are

1. **Air Traffic Control (ATC):** Air traffic controllers play a central role in airspace management. They provide instructions and clearances to aircraft, ensuring that they follow designated flight paths, altitudes, and separation standards.
2. **Airspace Classification:** Airspace is categorized into different classes (e.g., Class A, B, C, D, E, and G) based on factors like altitude, proximity to airports, and the level of ATC services provided. Each class has specific rules and requirements.
3. **Sectorisation:** To efficiently manage large volumes of air traffic, airspace is divided into sectors, each controlled by a different ATC facility. Controllers within each sector are responsible for managing traffic in their designated area.
4. **Route Structure:** Air traffic management organizations establish designated air routes and airways to guide the flow of traffic through controlled airspace. These routes are designed to minimize conflicts and ensure orderly movement.
5. **Coordination:** Effective coordination among ATC facilities is crucial, especially when aircraft transition from one sector to another. Handoffs between controllers ensure the continuity of safe and efficient operations.
6. **Separation Standards:** Specific separation standards are defined to maintain safe distances between aircraft. These standards vary based on factors such as aircraft type, altitude, and speed. Common separation standards include vertical, lateral, and longitudinal separation.
7. **Airspace Restrictions:** Certain areas of airspace may be restricted or prohibited for various reasons, such as military operations, security, or safety. Pilots must adhere to these restrictions.

Principles of Airspace Management

1. **Safety:** The primary goal of airspace management is safety. All procedures and decisions are made with the aim of preventing collisions, minimizing risks, andensuring the well-being of passengers and crew.
2. **Efficiency:** Airspace management aims to maximize the efficient use of airspace and minimize delays. This involves optimizing routes, reducing congestion, and coordinating traffic flows.
3. **Flexibility:** Airspace management must be adaptable to changing conditions, such as weather disruptions or unexpected events. Controllers and pilots must be prepared to adjust flight plans and routes as needed.
4. **Communication:** Effective communication between ATC and aircraft is fundamental to airspace management. Pilots must maintain contact with controllers and follow their instructions diligently.
5. **Collaboration:** Airspace management requires collaboration among various stakeholders, including civil aviation authorities, ATC facilities, airlines, and pilots. Coordination and cooperation ensure smooth operations.
6. **Technology:** Advanced radar, surveillance, and automation technologies play a crucial role in airspace management, allowing for precise tracking, data exchange, and traffic monitoring.
7. **Regulatory Compliance:** All parties involved in airspace management must adhere to established regulations and procedures to maintain order and safety in the airspace.
8. **Continuous Monitoring:** Air traffic management organizations continually monitor and analyse airspace operations to identify potential issues, make improvements, and enhance safety and efficiency.

Airspace management is essential for the safe and efficient functioning of the aviation industry. It is a dynamic and complex field that relies on a combination of human expertise, technology, and regulatory frameworks to ensure the orderly flow of air traffic in increasingly crowded skies.

Traffic coordination

Traffic coordination, in the context of air traffic management and control, refers to the systematic and organized process of managing the flow of air traffic, both in the airspace and on the ground, to ensure safety, efficiency, and orderliness. It involves various stakeholders,

including air traffic controllers, pilots, airlines, and air traffic management organizations, working together to facilitate the smooth movement of aircraft.

1. **Separation Standards:** Traffic coordination relies on specific separation standards that dictate the minimum distances and altitudes between aircraft. These standards ensure safe spacing and prevent collisions.
2. **Handoffs:** As aircraft move through different sectors of controlled airspace, controllers conduct handoffs, transferring responsibility for the aircraft from one controller to another. Effective communication and coordination during handoffs are critical.
3. **Flight Planning:** Airlines and flight dispatchers develop flight plans that take into account preferred routes, airway constraints, and traffic flow. These plans are submitted to ATC for approval and coordination.
4. **Route Optimization:** Traffic coordination involves optimizing air traffic routes to minimize congestion and reduce delays. This includes rerouting aircraft to avoid weather, traffic congestion, or airspace restrictions.
5. **Airspace Management:** Airspace is categorized into different classes and sectors, each managed by specific ATC facilities. Traffic coordination ensures that aircraft are properly routed through these sectors and classes.
6. **Weather Coordination:** Traffic coordination includes managing aircraft in response to weather events, such as thunderstorms, hurricanes, or fog, to ensure safety and minimize disruptions.
7. **Emergency Responses:** Coordination is crucial during emergency situations, such as aircraft diversions due to medical emergencies, technical issues, or security threats. Controllers and airlines work together to manage these situations.
8. **Communication:** Effective communication between controllers and pilots is essential for traffic coordination. Pilots must adhere to ATC instructions and report any deviations or issues promptly.
9. **Collaborative Decision Making (CDM):** CDM is a concept that encourages collaboration among all aviation stakeholders, including ATC, airlines, and airports. It aims to improve overall traffic flow management by sharing information and making collective decisions.
10. **Ground Traffic Coordination:** Traffic coordination extends to managing aircraft movements on airport runways, taxiways, and aprons. Ground control and tower

controllers oversee these operations to prevent runway incursions and ensure safe and efficient ground movement.

11. **Technology:** Advanced radar, surveillance systems, automation, and data-sharing platforms support traffic coordination by providing real-time information about aircraft positions, trajectories, and weather conditions.

Traffic coordination is a dynamic and complex process that requires constant monitoring, adaptability, and adherence to safety protocols. It is essential for maintaining the safety and efficiency of the global aviation system, especially in congested airspace and during periods of high air traffic volume.

Surface Movement Radar (SMR)

Surface Movement Radar (SMR) is a radar system specifically designed for monitoring and managing the movement of aircraft and vehicles on the ground at airports. It is an integral component of airport ground control systems, assisting air traffic controllers in ensuring safe and efficient operations on runways, taxiways, and aprons.

Features and Functions are

1. **Ground Surveillance:** SMR is used to provide surveillance and tracking of aircraft, ground vehicles (such as airport tugs and baggage carts), and other objects moving on the airport surface.
2. **Real-Time Data:** SMR systems provide real-time data on the position, speed, and direction of aircraft and vehicles on the ground, enhancing situational awareness for air traffic controllers.
3. **Enhanced Safety:** SMR helps prevent runway incursions, which are situations where an aircraft, vehicle, or person enters an active runway without proper authorization, reducing the risk of collisions on the ground.
4. **Weather Independence:** Unlike visual observation, SMR can operate in adverse weather conditions, such as fog, heavy rain, and low visibility, allowing controllers to maintain surveillance and control in challenging environments.
5. **Integration:** SMR is integrated into the airport's overall air traffic management system, providing data that supports the coordination of aircraft movements with tower controllers, ground controllers, and other stakeholders.

6. **Data Sharing:** SMR data is often shared with air traffic control tower personnel, ground control, and other relevant airport personnel to facilitate efficient surface operations.
7. **Conflict Detection and Alerting:** SMR systems are equipped with conflict detection algorithms that can automatically alert controllers to potential conflicts or unsafe situations on the ground.
8. **Reduced Delays:** By providing controllers with real-time information about aircraft and vehicle positions, SMR helps optimize the allocation of runway and taxiway resources, reducing taxiing times and overall airport congestion.
9. **Runway Occupancy Management:** SMR assists in managing runway occupancy, ensuring that aircraft are properly spaced when taking off or landing and those runways are cleared promptly after use.
10. **Integration with Tower Operations:** SMR is typically part of the tower controller's suite of tools, allowing them to coordinate surface movements with takeoffs, landings, and clearances for aircraft.
11. **Automated Monitoring:** Some SMR systems can be configured to automatically monitor specific areas of interest and provide alerts when unauthorized or unexpected movements occur.
12. **Safety Nets:** SMR systems may incorporate safety nets that help controllers maintain safe separation between aircraft and vehicles. These safety nets provide additional layers of protection against runway incursions.
13. **Historical Data:** SMR systems often store historical data about aircraft and vehicle movements on the airport surface, which can be useful for incident investigations and performance analysis.

Surface Movement Radar is a critical component of airport ground control, contributing to the safety and efficiency of airport operations. It ensures that aircraft and vehicles are appropriately sequenced and separated on the ground, reducing the risk of accidents and runway incursions, and ultimately facilitating the smooth flow of traffic at airports.

Emergency protocols and procedures

Emergency protocols and procedures in aviation are critical safety measures designed to address unexpected or critical situations that can occur during all phases of flight. These

protocols are meticulously developed, standardized, and practiced to ensure the safety of passengers, crew, and aircraft.

Types of Emergencies

Aviation emergency procedures cover a range of scenarios, including but not limited to:

1. **Engine Failure:** Response procedures for engine failure during take-off, climb, or cruise.
2. **Fire:** Protocols for dealing with engine fires, cabin fires, or other on-board fires.
3. **Medical Emergencies:** Procedures for assisting passengers or crew members experiencing medical issues or emergencies.
4. **Loss of Cabin Pressure:** Steps to take in response to a sudden loss of cabin pressure, including the use of oxygen masks.
5. **Severe Turbulence:** Guidelines for managing aircraft during severe turbulence and ensuring passenger safety.
6. **Hydraulic Failures:** Protocols for handling hydraulic system failures that may affect control surfaces or landing gear.
7. **Electrical Failures:** Procedures for addressing electrical system failures and power interruptions.
8. **Weather-related Emergencies:** Protocols for encountering severe weather conditions, such as thunderstorms or icing.
9. **Hijacking or Security Threats:** Plans for responding to security threats, including hijacking situations.
10. **Fuel or Fuel System Issues:** Actions to take when experiencing fuel shortages or issues with the fuel system.
11. **Emergency Equipment:** Aircraft are equipped with various emergency equipment, including fire extinguishers, oxygen masks, life vests, life rafts, and emergency slides. Crew members are trained to use this equipment effectively.

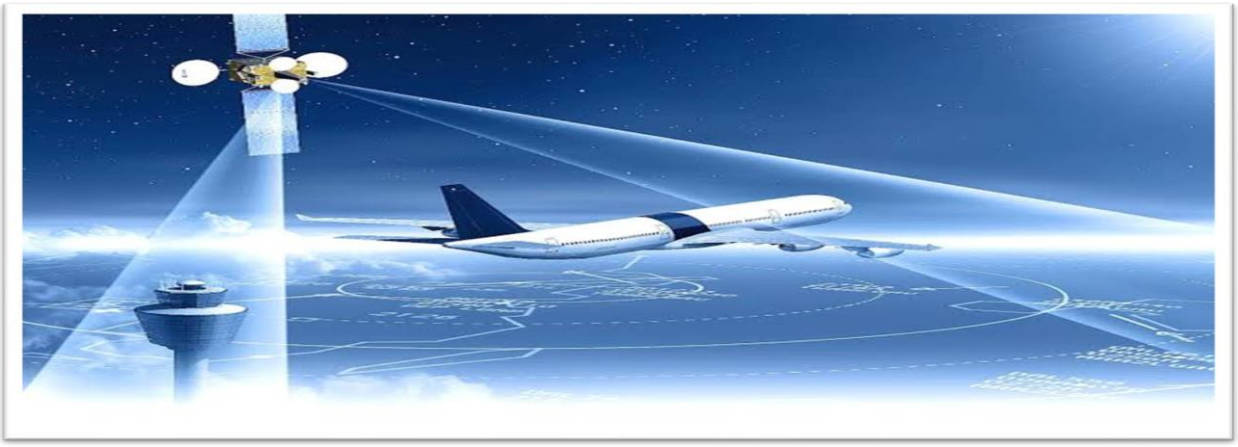
Passenger Briefings

Flight attendants provide safety briefings to passengers before take-off, including instructions on seatbelts, life vests, oxygen masks, and emergency exits.

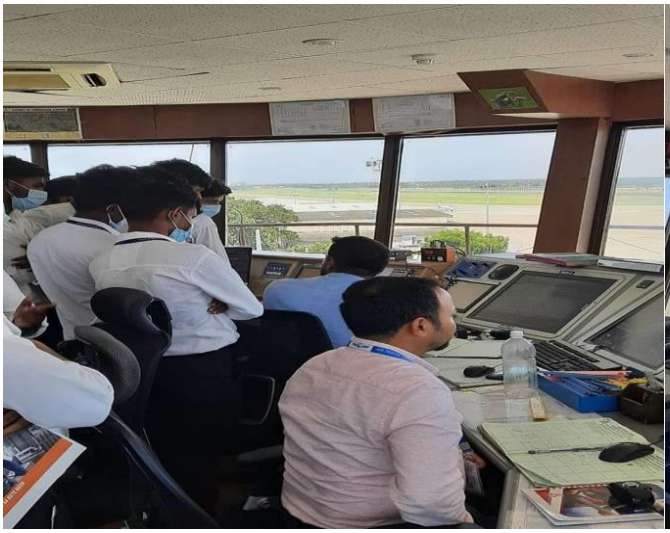
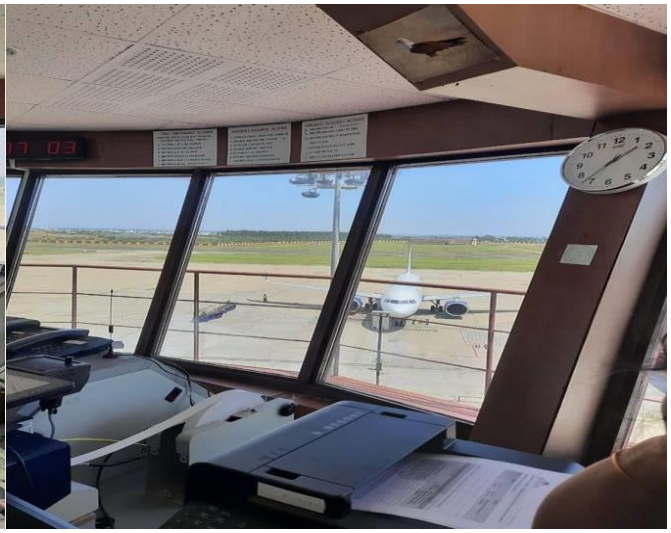
1. **Crew Training:** Flight crews undergo extensive training in emergency procedures and are required to pass regular proficiency checks to ensure they can respond effectively to emergencies.
2. **Communication:** In emergencies, crew members communicate with air traffic control (ATC) to request assistance and inform them of the situation.
3. **Passenger Management:** Flight attendants are trained to manage passenger behavior during emergencies, ensuring that passengers remain calm and follow instructions.
4. **Emergency Landing:** Procedures for making an emergency landing, including selecting a suitable airport, notifying ATC, and preparing passengers and crew for the landing.
5. **Evacuation:** Protocols for evacuating the aircraft in the event of an emergency, including the use of emergency slides and life rafts.
6. **Post-Emergency Response:** After an emergency, crews are trained to provide immediate medical assistance to injured passengers and to coordinate with emergency services on the ground.
7. **Reporting and Investigation:** Aviation authorities require airlines to report all emergencies. Investigations are conducted to determine the cause of the emergency and to improve safety measures.
8. **Passenger Responsibility:** Passengers are instructed to follow crew instructions, stay seated with seatbelts fastened during turbulence, and to be aware of emergency exits.

Aviation safety is a top priority, and airlines, regulatory authorities, and aviation professionals take emergency protocols and procedures very seriously. Regular training, simulations, and adherence to standardized procedures are essential to ensuring that aviation emergencies are managed effectively, minimizing risks and ensuring the safety of all on-board.

Communication, Navigation, and Surveillance (CNS)



Communication, Navigation, and Surveillance (CNS) are essential components of the aviation system that ensure the safe and efficient operation of aircraft in both controlled airspace and airports. These elements encompass a range of technologies, protocols, and systems that enable aircraft to communicate with air traffic control (ATC), navigate accurately, and be tracked for safety and situational awareness.

1. Communication (C in CNS)

Communication in aviation refers to the exchange of information between aircraft, air traffic control (ATC) facilities, and other aviation stakeholders. Effective communication is vital for maintaining safe and orderly operations.

1. **Very High Frequency (VHF) Communication:** VHF radios are used for voice communication between aircraft and ATC. They operate in the VHF frequency band and are used for essential instructions, clearances, and reports.
2. **Emergency Communication:** Aircraft have designated emergency frequencies for distress and urgency communications, such as 121.5 MHz for civil aviation and 243 MHz for military use.
3. **Data Link Communications:** Modern aircraft use data link technologies, such as Controller-Pilot Data Link Communications (CPDLC) and Automatic Dependent Surveillance-Broadcast (ADS-B), to exchange data with ATC and other aircraft.
4. **Satellite Communication:** Satellite communication systems enable long-distance and over-ocean communications, improving global connectivity.

2. Navigation (N in CNS)

Navigation in aviation involves accurately determining an aircraft's position, direction, and altitude, enabling it to follow a designated flight path.

Global Navigation Satellite Systems (GNSS): Systems like the Global Positioning System (GPS) provide highly accurate position and navigation information to aircraft.

1. **Instrument Landing System (ILS):** ILS is a ground-based system that provides precision guidance for aircraft during approach and landing in adverse weather conditions.
2. **VOR/DME:** VHF Omni-directional Range (VOR) and Distance Measuring Equipment (DME) are ground-based aids that assist in aircraft navigation and determining distances.
3. **Area Navigation (RNAV) and Required Navigation Performance (RNP):** RNAV and RNP procedures allow aircraft to navigate along specific routes with precision using on-board navigation systems.
4. **Inertial Navigation Systems (INS):** INS uses accelerometers and gyroscopes to determine an aircraft's position, velocity, and attitude independently of external references.

3. Surveillance (S in CNS)

Surveillance in aviation refers to the tracking and monitoring of aircraft to ensure safe separation and situational awareness. Accurate surveillance is crucial for air traffic control and collision avoidance. Key surveillance technologies and systems include:

1. **Primary Surveillance Radar (PSR):** PSR uses radar signals to detect aircraft positions and provide basic tracking information, including range and azimuth.
2. **Secondary Surveillance Radar (SSR):** SSR relies on transponders installed on aircraft to provide additional information, such as aircraft identity, altitude, and squawk codes. Mode S transponders offer enhanced surveillance capabilities.
3. **Automatic Dependent Surveillance-Broadcast (ADS-B):** ADS-B technology allows aircraft to broadcast their position, altitude, and other data, improving situational awareness and surveillance.
4. **Multilateration (MLAT):** MLAT systems use multiple ground-based receivers to triangulate aircraft positions based on their transponder signals.
5. **Wide Area Multilateration (WAM):** WAM extends the surveillance coverage in areas where radar coverage is limited.

CNS technologies are continually evolving to enhance safety, efficiency, and global connectivity in aviation. The integration of advanced communication, navigation, and

surveillance systems is a fundamental aspect of modern air traffic management, allowing for the safe and orderly flow of air traffic worldwide.

Role of CNS in Aviation Safety and Security

Communication, Navigation, and Surveillance (CNS) systems play pivotal roles in maintaining aviation safety and security by providing the necessary tools, infrastructure, and information for effective air traffic management and aircraft operation.

1. Air Traffic Management (ATM): CNS systems enable real-time communication between aircraft and air traffic control (ATC) facilities, ensuring that controllers can provide timely instructions, clearances, and traffic separation to prevent mid-air collisions. Precise navigation and surveillance data from CNS systems assist controllers in guiding aircraft along designated routes and ensuring safe separation between them. CNS technologies, such as radar, transponders, and data link communication, enhance ATC's ability to monitor aircraft movements and maintain situational awareness within controlled airspace.

2. Collision Avoidance: CNS plays a crucial role in collision avoidance, helping aircraft detect and respond to potential conflicts in real-time. Transponders and secondary surveillance radar (SSR) provide aircraft identity, altitude, and position information to both ATC and other aircraft, facilitating the safe separation of air traffic. Traffic Collision Avoidance Systems (TCAS), which rely on SSR and Mode S transponders, issue advisories and resolution advisories to pilots to prevent mid-air collisions.

3. Navigation Accuracy: CNS navigation systems, such as GPS and Instrument Landing Systems (ILS), ensure precise aircraft positioning, approach, and landing, even in adverse weather conditions. Accurate navigation reduces the likelihood of runway incursions and ensures safe approaches and departures from airports.

4. Emergency Response: In emergency situations, effective CNS communication allows pilots to declare emergencies, request assistance, and relay critical information to ATC and search-and-rescue teams. Emergency locator transmitters (ELTs) and distress frequencies enable rapid response to aircraft in distress or crash locations.

5. Surveillance and Security: CNS surveillance systems, including radar and ADS-B, contribute to airspace security by monitoring and tracking all aircraft movements. Surveillance information helps authorities identify and respond to unauthorized or suspicious aircraft activity, enhancing airspace security.

6. Efficient Airspace Management: CNS supports the efficient use of airspace and airport resources, reducing congestion and delays. Data link communication, such as Controller-Pilot Data Link Communication (CPDLC), streamlines communication and reduces radio frequency congestion.

7. Weather Adaptability: CNS systems enable aircraft to navigate and communicate effectively, even in adverse weather conditions. Enhanced communication and navigation capabilities help pilots and controllers respond to weather-related challenges, such as turbulence and thunderstorms.

8. Search and Rescue Operations: CNS equipment, including transponders and emergency locator transmitters (ELTs), aids in locating aircraft in distress or missing aircraft. Accurate surveillance and communication data assist search and rescue teams in their efforts to locate and assist distressed aircraft.

Communication system and their importance

1. VHF communication is the primary means of voice communication between aircraft and ATC. It ensures that pilots receive instructions, clearances, and important information from controllers, contributing to the safe and orderly flow of air traffic.
2. Data link communication systems, such as Controller-Pilot Data Link Communication (CPDLC), enable the exchange of text-based messages between aircraft and ATC. They reduce voice communication congestion, allow for clear and efficient information transfer, and improve situational awareness.
3. Dedicated emergency communication frequencies, such as 121.5 MHz, are essential for pilots to declare emergencies, seek assistance, and communicate distress situations. These frequencies ensure a rapid response to critical incidents.
4. Satellite communication systems enable long-distance and over-ocean communications, ensuring that aircraft remain connected even when out of range of terrestrial VHF systems. They contribute to global connectivity and enhance safety during long-haul flights.
5. Air-to-air communication allows aircraft to communicate directly with each other for purposes such as traffic advisories and coordination. This improves collision avoidance and situational awareness.
6. Ground-based communication systems, including communication radios in air traffic control towers, ground control, and airline operations centers, facilitate coordination among aviation stakeholders, ensuring efficient ground operations and safety.

7. Communication systems provide access to weather information, NOTAMs (Notice to Airmen), and other critical data that helps pilots and operators make informed decisions about flight routes, delays, and diversions to avoid adverse weather conditions or other hazards.
8. Communication systems play a crucial role in search and rescue operations. Aircraft in distress can transmit distress signals and coordinate rescue efforts using dedicated communication channels, enhancing the chances of a successful rescue.
9. Voice and data recorders (e.g., black boxes) store communication and flight data, aiding accident investigations. These devices help determine the causes of accidents and improve aviation safety.
10. AGDL systems enable aircraft to send and receive data, including flight plans, performance data, and other operational information, to and from ATC. This enhances efficiency and reduces manual data entry errors.

Navigation aids and their roles

1. VOR is a ground-based navigation aid that provides both azimuth (directional) and distance information to aircraft equipped with VOR receivers. It is widely used for en route navigation and instrument approaches.
2. ILS is a precision approach system used for safe and accurate landings, especially in low-visibility conditions.
3. GPS is a satellite-based navigation system that provides highly accurate position, velocity, and time information to aircraft equipped with GPS receivers.
4. DME is a ground-based system that measures the slant range distance between the aircraft and a DME ground station.
5. ADF is a radio navigation system that detects the direction of an NDB (Non-Directional Beacon) station.
6. NDB is a ground-based radio transmitter that emits radio signals in all directions.
7. TACAN is a military navigation system that provides both distance and directional information to aircraft equipped with TACAN equipment.
8. Marker beacons are ground-based radio transmitters placed at specific locations along the approach path to a runway.
9. Weather radar is used to detect and display weather conditions, including precipitation and turbulence, in the aircraft's vicinity.

CHAPTER – III

CHAPTER – III
LEARNINGS AND OUTCOMES

Impact of Internship

Internship experiences at airports can have a profound impact on individuals' personal and professional development. These experiences provide a unique opportunity to gain insights into the aviation industry, learn about airport operations, and develop a range of skills. Here are some ways in which internship experiences at airports can make a significant impact:

1. Industry Knowledge: Interns gain a deep understanding of the aviation industry, including airport management, air traffic control, security procedures, and regulatory compliance. This knowledge can be valuable for future careers in aviation.

2. Practical Experience: Airport internships offer hands-on experience in various aspects of airport operations, such as terminal management, ground services, baggage handling, and aircraft maintenance. Interns can apply classroom knowledge to real-world scenarios.

3. Skill Development: Interns have the opportunity to develop a wide range of skills, including problem-solving, communication, teamwork, and project management. They may also gain technical skills relevant to their specific roles.

4. Networking Opportunities: Internships provide access to a network of airport professionals, including airport managers, air traffic controllers, security personnel, and aviation experts. Building these connections can be valuable for future career opportunities.

5. Exposure to Airport Operations: Interns get a behind-the-scenes look at airport operations, from airside (runways and aircraft) to landside (terminals and facilities). This exposure helps them understand the complexities of airport management.

6. Career Advancement: Successful airport internships can lead to job offers or open doors for future employment opportunities within the aviation industry. Employers often value candidates with relevant airport experience.

Take-ways and Lessons Learned

The key takeaways and lessons learned from different airport departments are

1. Air Cargo

Logistics and Operations: Interns in the air cargo department gain insights into the intricate logistics and operations involved in handling and transporting goods via air. They learn about cargo handling processes, packaging requirements, and customs regulations.

Efficiency and Timeliness: The air cargo department emphasizes the importance of efficiency and timeliness in cargo operations. Interns understand the significance of quick turnaround times and on-time deliveries.

Documentation and Compliance: Interns learn about the documentation and compliance requirements related to cargo shipments, including airway bills, customs declarations, and security protocols.

Problem-Solving: Handling cargo can present various challenges. Interns develop problem-solving skills by addressing issues like shipment delays, damaged goods, and tracking discrepancies.

2. Airport Terminal Building

Passenger Experience: Interns in the terminal building department gain insights into creating a positive passenger experience. They learn about terminal design, signage, way finding, and amenities.

Safety and Security: Safety and security are paramount in airport terminals. Interns become familiar with security protocols, emergency response plans, and passenger screening procedures.

Facility Management: Interns learn about the day-to-day management of terminal facilities, including maintenance, cleaning, and ensuring accessibility for all passengers.

Customer Service: Providing excellent customer service is a core focus. Interns gain experience in addressing passenger inquiries, handling complaints, and ensuring a smooth check-in and boarding process.

3. Air Traffic Control (ATC)

Safety First: ATC emphasizes the importance of safety above all else. Interns learn about procedures for maintaining safe separation between aircraft and responding to emergency situations.

Communication Skills: Effective communication is crucial in ATC. Interns develop strong communication skills and learn to convey information clearly and concisely.

Stress Management: ATC can be a high-stress environment. Interns acquire stress management techniques and the ability to remain calm under pressure.

Decision-Making: Interns witness real-time decision-making in ATC, including coordinating arrivals and departures, rerouting aircraft due to weather, and managing air traffic flow.

4. Communication, Navigation, and Surveillance (CNS)

Technology and Innovation: In the CNS department, interns explore cutting-edge technologies such as radar systems, satellite communication, and navigation aids. They gain insight into how technology enhances aviation safety.

Precision and Accuracy: CNS emphasizes precision and accuracy in navigation and surveillance. Interns learn how even small errors can have significant consequences.

Collaboration: Interns witness the importance of collaboration between various CNS components, air traffic controllers, and pilots. They learn how these systems work together to ensure safe and efficient operations.

Continuous Learning: Technology in CNS is continually evolving. Interns understand the importance of staying updated on advancements and regulations in this field.

Contribution of Internship in Career Development

Internships play a significant role in helping individuals understand aviation management by providing them with practical experience and exposure to various aspects of the aviation industry.

1. Real-World Application: Internships allow individuals to apply theoretical knowledge gained in academic settings to real-world aviation management scenarios. This practical application deepens their understanding of aviation concepts and principles.

2. Industry Exposure: Interns gain first-hand exposure to the aviation industry, including its operations, regulations, and challenges. They learn about the complexities of managing an airport or aviation-related organization.

3. Hands-On Experience: Internships offer the opportunity to work on projects, tasks, and responsibilities directly related to aviation management. This hands-on experience helpsinterns understand the day-to-day operations and decision-making processes in aviation.

4. Networking: Internships provide opportunities to build professional networks within the aviation sector. Interns interact with industry professionals, mentors, and colleagues, expanding their contacts and resources for future career development.

5. Leadership Skills: Aviation management often involves leadership and decision-making roles. Interns may have the chance to observe and even participate in leadership activities, helping them develop leadership skills and competencies.

CHAPTER – IV

CHAPTER – IV
CONCLUSION

In conclusion, internship experience during the airport visit has been both insightful and enriching. It provided me with a unique opportunity to gain first-hand exposure to the aviation industry and witness the intricate operations that ensure the smooth functioning of an airport. This report has aimed to capture the essence of my internship, highlighting key takeaways and lessons learned in various airport departments, including air cargo, airport terminal building, air traffic control, and communication, navigation, and surveillance.

Throughout the internship, I had the privilege of working alongside dedicated professionals who generously shared their knowledge and expertise. I was able to apply classroom theory to real-world scenarios, honing my practical skills and gaining a deeper understanding of aviation management. The experience allowed me to witness the critical role that communication, teamwork, and attention to detail play in ensuring the safety and efficiency of aviation operations. This internship experience has not only enriched my knowledge but has also fostered personal growth.