INTRODUCTION *to* AVIATION

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INTRODUCTION TO AVIATION

Aviation is the field of transportation and technology that deals with the development, operation, and study of aircraft, which are machines designed for air travel. It encompasses a wide range of activities related to the design, manufacturing, operation, and maintenance of aircraft, as well as the infrastructure and regulations that govern the aviation industry. Aviation has significantly shaped the modern world, connecting people and goods across long distances and enabling rapid travel and global trade.

Aviation is a dynamic and rapidly evolving field, with ongoing technological advancements and a profound impact on global connectivity and commerce. As the industry continues to grow, it is meeting the increasing demand for air travel and addressing environmental concerns, driving innovation and research in the sector.

HISTORY OF AVIATION

The history of aviation has extended over more than two thousand years, from the earliest forms of aviation, kites and attempts at tower jumping, to supersonic, and hypersonic flight by powered heavier-than-air jets.

The origin of the first man-made flying objects were kites circa 200 B.C. in China. Leonardo da Vinci expressed his dream of flight in several of his paintings circa the 15th century, however, his dream never manifested into a constructed flying vessel.
During the 17th and 18th centuries, the discovery of hydrogen led to the first development of the hydrogen balloon, which carried people away at high altitudes and across several miles. In the 19th century, tethered balloons were used to transport people and observe battles safely above ground as they took place.

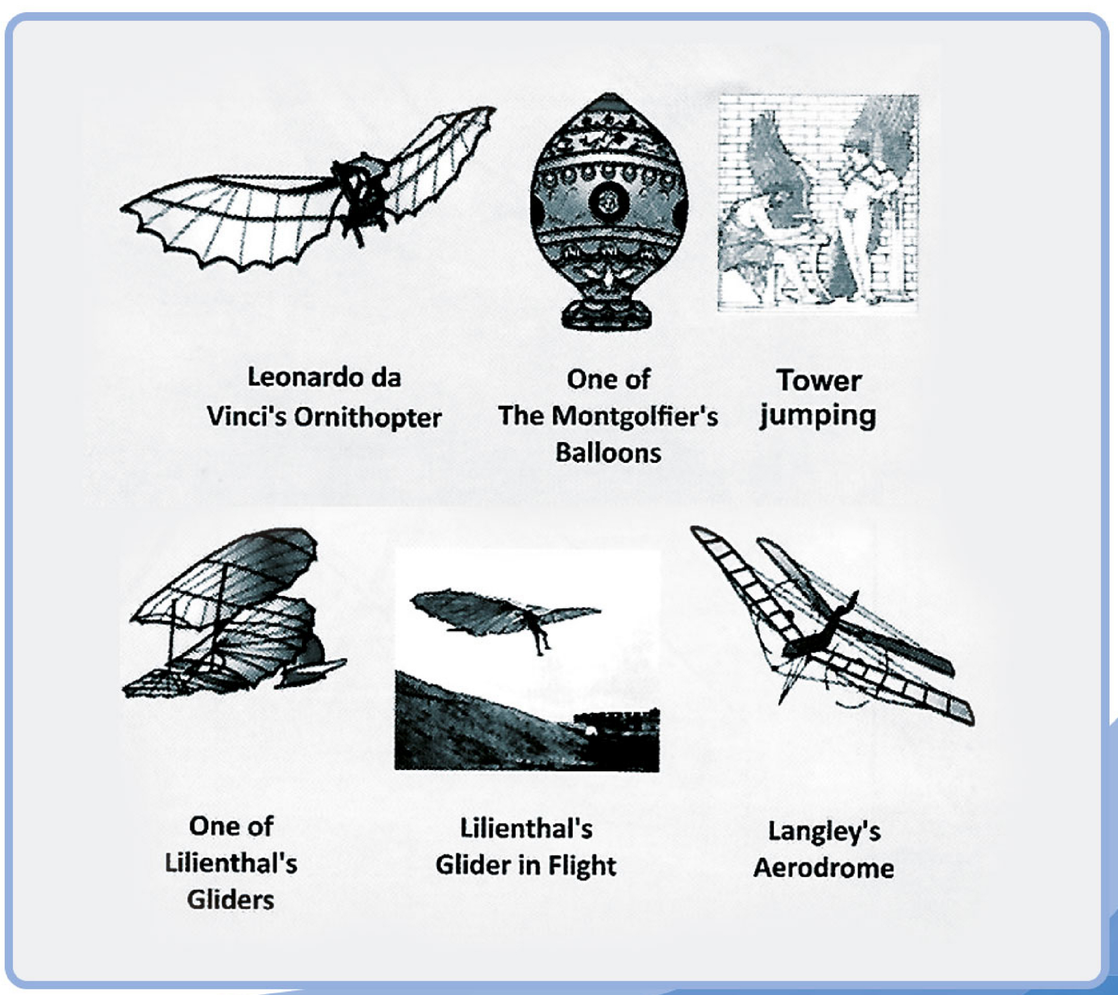
In 400 B.C. a Grecian scholar by the name of Archytas designed and constructed a steam-powered aircraft modeled after the shape of a bird. According to scholars of that time, "The Pigeon" was reputed to have flown approximately two hundred meters on a suspended string. The first attempt at moving objects through the air was in the form of kites around 200 B.C. in China. In fact, a Chinese military officer flew a kite over enemy lines in a mission to determine the length of tunnel it would take to storm an attack. During this invasion, a Chinese prince attached himself to the same kite in order to save himself. The invention of the Kongming lantern, an oil lamp glowing under a large paper bag that floated in the midnight sky, helped General Zhuge Liang defeat his enemies by scaring them into thinking a divine force helped him.

Hot air balloons have been known in China since about the 3rd century B.C. In the 5th century B.C.E., Lu Ban invented a large kite made from wood. In the 1st century A.D., Xiong Nu bound himself with a bird feather and glided about one hundred meters before finally landing. Yuan Huangtou was the first manned kite glide to depart from a tower. The oil lamps became popular during popular festivities and may have filtered into the Middle East through the Silk Road.

Eilmel Malmesbury, an English monk, successfully flew a glider for about two hundred meters before sustaining injuries.

In 1647, Tito Livio Burattini built a model aircraft with four pairs of fixed glider wings. It was reported that the four-winged aircraft lifted a cat in 1648; however, it never supported the weight of a human passenger.

In 1670, Francesco Terzi released a published work that contained a theory that supported the possibility of lighter-than-air flying vessels using copper foil cylinders with a vacuum. While his theory was not entirely wrong, he forgot to figure out that the surrounding atmosphere would crush the spheres.



MODERN FLIGHTS

During the 17th and 18th centuries, the discovery of hydrogen led to the invention of the hydrogen balloon, which carried people away at high altitudes and across several miles.

The hot air balloon became extremely popular during the late Eighteenth century, which furthered the discovery of the correlation between altitude and atmosphere. Inventors attempted to create a hot air balloon that could be easily steered.

Scholars cite **Henri Giffard** as the first to fly a lighter-than-air steam-engine craft in 1852. Giffard flew for a total of 15 miles in France. In the United States, non-steerable hot air balloons were used during the American Civil War by the Union.

Despite these advancements, the lighter-than-air craft was temporarily short-lived and not very durable. Even though airships were used during the First and Second World Wars, heavier-than-air craft greatly overshadowed their existence. **Alberto Santos-Dumont was the first pilot to successfully fly a non-rigid airship equipped with an internal combustion engine.**

In 1901, Santos-Dumont flew his airship called the "Number 6" over Paris and around the Eiffel Tower in under thirty minutes. Ferdinand von Zeppelin was the pioneer of dirigible design. In 1899, he began working on the first Zeppelin airship. Zepplin's prototype airship, also known as the Luftschiff Zeppelin 1 (LZ 1), was equipped with two Daimler engines.

- In 1900, the first Zeppelin launched and lasted for only eighteen minutes before being forced to land on a lake due to mechanical problems.
- In 1902, Leonardo Torres Quevedo built his own version of the Zeppelin and modified the balancing problems.

HEAVIER-THAN-AIR AIRCRAFT

Samuel Pierpont Langley became one of the first pioneers to probe into the field of aerodynamics seriously. In 1869, Langley built the Aerodrome No. 5, an unmanned heavier-than-air craft, and successfully launched it on a sustained flight. Unfortunately, Langley's design was too frail to hold itself together.

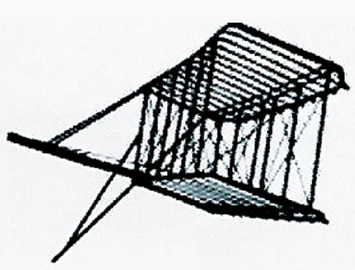
The **Wright Brothers** designed and tested numerous kite and glider models between 1900 to 1902. Deeply disappointed in these designs, the Wrights built a wind tunnel and then created numerous devices that were used to measure the lift and drag on over two hundred wing designs. The Wrights finally found satisfaction with their third glider as it outperformed its predecessors and rigorous testing contributed to the field of aeronautical engineering. The Wrights were the first to seriously study the existing power and control problems. **They discovered the solution to the control problem by developing wing warping for roll control, yaw control, and a steerable rudder. The Wrights made the first sustained, manned heavier-than-air flight on December 17th 1903.**

In 1906, Alberto Santos-Dumont announced his first takeoff with his machine entitled, "14-bis," in Paris. In 1908, he began working with the Clement-Bayard company to build the Demoiselle No. 19; the world's first mass-produced aircraft.

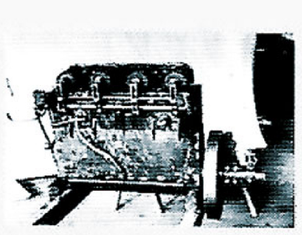
The military started using aeroplanes as soon as they were invented. During the Second World War, all countries advanced their development and production of aircraft and flight-based weapons systems. In 1942, the world's first jet-powered bomber was launched entitled, the "Arado Ar 234." Helicopters also saw rapid development during World War II.



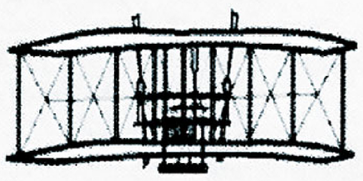
Model of Langley Aerodrome



A Drawing of a Wright Brothers Glider (1900)



12 horsepower engine used in flight



The Wright Brother's Flyer



Actual Flight of The Flyer at Kitty Hawk



AVIATION TERMINOLOGY & DEFINITIONS

INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO)

A specialised agency of the United Nations that establishes international standards and regulations for Civil Aviation, which has currently 193 countries.
ICAO works with these 193 member countries and global aviation organizations to develop international Standards and Recommended Practices (SARPS) which States reference when developing their legally enforceable national civil aviation regulations.

ICAO

DIRECTORATE GENERAL OF CIVIL AVIATION (DGCA)

DGCA is the Indian governmental regulatory body for civil aviation under the Ministry of Civil Aviation which deals with all matters pertaining to Civil Aviation in the country, like:

Directorate General of Civil Aviation

- Licensing of pilots, aircraft maintenance engineers and flight engineers, and conducting examinations and checks for that purpose.
- Supervision of the institutes/clubs/schools engaged in flying training including simulator training, AME training or any other training related with aviation, with a view to ensuring a high quality of training.
- Registration of civil aircraft in India.
- Safety Oversight of all entities approved/certified/licensed under the Aircraft Rules 1937.
- Certification of aerodromes and CNS/ATM facilities;
- Granting of Air Operator's Certificates to Indian carriers and regulation of air transport services operating to/from/within/over India by Indian and foreign operators, including clearance of scheduled and non-scheduled flights of such operators.



Aircraft: An aircraft is a machine that is able to fly by gaining support from the air or in general the atmosphere of a planet. It is a vehicle designed for air travel, including aeroplanes, helicopters, gliders, drones etc.



Airship: An airship or dirigible is a type of aerostat or lighter-than-air aircraft which can navigate through the air under its own power. Aerostats gain their lift from large gas bags filled with a lifting gas that is less dense than the surrounding air.



Aeroplane: It is a power-driven heavier-than-air aircraft with fixed wings.



Aerodrome: An amphibious aircraft or amphibian is an aircraft that can take off and land on both land and water.



Glider: A glider is a heavier-than-air aircraft that is supported in flight by the dynamic reaction of the air against its lifting surfaces, and whose free flight does not depend on an engine.



Aircraft Act: The Indian Aircraft Act of 1934, passed by the Indian Parliament, is the legislation that governs civil aviation in India. This act provides the legal framework for the operation of aircraft, the establishment and functioning of aviation authorities, and various other matters related to aviation within the country. The act has been amended and updated over the years to reflect changes in the aviation industry and international standards.

CIVIL AVIATION REQUIREMENTS (CAR)

CAR is a set of regulations and requirements established by the civil aviation authority of India, DGCA. These requirements are designed to govern and regulate various aspects of civil aviation, including safety, security, operations, and airworthiness. These CARs are issued under the rule 133B of Aircraft Rule, 1938 derived from the Aircraft Act, 1934, passed by the Indian Parliament.

AIRWORTHINESS

Airworthiness refers to the condition of an aircraft, its components, and its overall design, which determines its suitability and safety for flight. The concept of airworthiness is fundamental in aviation to ensure the safety and reliability of aircraft. Various definitions related to airworthiness include:

- **Airworthiness:** The overall condition of an aircraft or aircraft component, including its design, construction, maintenance, and performance, that permits it to operate safely and efficiently.
- **Airworthiness Certificate:** A legal document issued by the appropriate aviation authority, such as the Federal Aviation Administration (FAA) in the United States, that attests to an aircraft's compliance with airworthiness standards and its fitness for flight.
- **Airworthiness Directive (AD):** A regulatory mandate issued by aviation authorities to address safety issues or defects in an aircraft, its components, or equipment. Compliance with ADs is required for the continued airworthiness of an aircraft.
- **Airworthiness Inspection:** A systematic evaluation of an aircraft to assess its condition, maintenance, and compliance with airworthiness standards. This inspection ensures that the aircraft remains safe for flight.
- **Maintenance of Airworthiness:** The ongoing process of ensuring that an aircraft remains in a safe and serviceable condition through regular inspections, repairs, and maintenance. remains safe for flight.
- **Continuing Airworthiness:** The process of maintaining an aircraft's airworthiness throughout its operational life, including inspections, maintenance, modifications, and compliance with regulatory requirements.
- **Type Certificate:** A certification issued by the aviation authority for a specific type or model of aircraft, confirming its design and components meet airworthiness standards.
- **Airworthiness Standards:** A set of regulations, guidelines, and technical requirements established by aviation authorities to ensure the safety, reliability, and performance of aircraft.
- **Airworthiness Review:** A comprehensive assessment of an aircraft's airworthiness status, is required for aircraft registered in the country to ensure their continued fitness for flight.
- **Condition for Safe Operation:** The state in which an aircraft and its components meet airworthiness standards and are suitable for safe flight operations.

Airworthiness is a critical concept in aviation that involves various stakeholders, including aircraft manufacturers, operators, maintenance personnel, and aviation authorities, working together to ensure the safety and reliability of aircraft in flight. Compliance with airworthiness standards is essential to maintain safe and efficient aviation operations.

AERONAUTICS

The science or practice of designing, building, and operating aircraft.



AIRCRAFT MAINTENANCE

Aircraft maintenance refers to the process of inspecting, repairing, and servicing aircraft to ensure their continued airworthiness, safety, and reliability. This crucial aspect of aviation is subject to strict regulations and standards established by aviation authorities to maintain the integrity of aircraft and guarantee the safety of passengers and crew. The primary goals of aircraft maintenance are to identify and address issues, prevent mechanical failures, and extend the operational life of the aircraft. Here are some key elements of aircraft maintenance:

- **Inspection:** Regular inspections are conducted to assess the condition of an aircraft. These inspections can be routine, scheduled checks or more comprehensive examinations, such as annual inspections.
- **Routine Maintenance:** Routine maintenance includes tasks like checking fluid levels, replacing worn components, and performing minor repairs to address normal wear and tear. These tasks are typically carried out at regular intervals.
- **Scheduled Maintenance:** Aircraft maintenance schedules are developed based on factors like flight hours, flight cycles, and calendar time. Scheduled maintenance involves more in-depth inspections and system checks.
- **Unscheduled Maintenance:** Aircraft may require unscheduled maintenance due to unexpected issues, malfunctions, or damage. These repairs are performed to address safety concerns and return the aircraft to airworthiness.
- **Preventive Maintenance:** Aircraft operators are often authorized to perform specific preventive maintenance tasks as specified by regulations. These tasks are intended to prevent potential problems.
- **Component Replacement:** Over time, various aircraft components, such as engines, landing gear, and avionics systems, may require replacement to maintain airworthiness.
- **Overhaul:** Overhauls involve the disassembly, inspection, repair, and reassembly of major aircraft systems or components to restore them to like-new condition.
- **Regulatory Compliance:** Aircraft maintenance must adhere to regulations set forth by aviation authorities, such as the Federal Aviation Administration (FAA) in the United States or the European Union Aviation Safety Agency (EASA) in Europe.
- **Record Keeping:** Detailed records of all maintenance activities, inspections, repairs, and component replacements are maintained. These records are essential for demonstrating compliance with regulations and ensuring the aircraft's airworthiness.
- **Human Factors:** Human factors play a significant role in aircraft maintenance, including the training and competency of maintenance personnel, as well as the importance of clear communication and documentation.
- **Safety Management Systems (SMS):** SMS is a systematic approach to managing safety in aviation, including the identification of potential safety risks and the development of strategies to mitigate them in aircraft maintenance and operations.
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Aircraft Maintenance Repair & Overhauling Organisations (MROs)

MROs are specialized centres equipped to perform various aircraft maintenance tasks, including inspections, repairs, and component replacements.

Aircraft Maintenance Engineers

AMEs are highly trained professionals responsible for inspecting, maintaining, and repairing aircraft to ensure they are safe, airworthy, and in compliance with aviation regulations.

ATC (Air Traffic Control)

The system and personnel responsible for managing and controlling air traffic to ensure the safe and orderly movement of aircraft.



AVIATION LAWS & REGULATIONS

In India, civil aviation and aviation education are subject to a comprehensive framework of laws and regulations to ensure safety, security, and the overall development of the aviation industry. Some of the key laws and regulations include

- **Aircraft Act, 1934:** This is a foundational legislation that empowers the Directorate General of Civil Aviation (DGCA) to regulate and oversee civil aviation operations, including aircraft registration, airworthiness, and flight safety.
- **Aircraft Rules, 1937:** These rules provide detailed regulations on various aspects of aviation, such as aircraft maintenance, airworthiness standards, licensing of aviation personnel, and aircraft operations.
- **Civil Aviation Requirements (CARs):** CARs are issued by the DGCA and provide detailed requirements and guidelines on various aspects of civil aviation, including airworthiness, flight operations, training, and licensing.
- **Section 60 in The Aircraft Rules, 1937:** Any aircraft engaged in public transport including aerial work and flying training shall not be flown unless ;

  (b) maintenance of aircraft has been carried out by or under the supervision of a person licensed or authorised under rule 61, or authorised in writing by an approved maintenance organisation in accordance with the criterion specified by the Director-General of Civil Aviation, Govt. of India; and

  (c) all maintenance carried out has been certified by appropriately licensed engineers or authorised persons within the period specified by means of such a 'certificate' as may be prescribed by the Director-General.
- **Rule 133B of the Aircraft Rules 1937:** Rule 133B of the Aircraft Rules 1937, lays down the requirements for grant of approval to Organization engaged in manufacture, maintenance, modification, repair, inspection, processing, testing, Storage and distribution of civil aircraft, aircraft components, items of equipment, aircraft goods and Training School and specifies the standards to be followed by these organization(s).

The DGCA is the apex body in setting the standards for training institutions, both theoretical and practical in India. To offer Aircraft Maintenance Engineering (AME) programs, institutions need DGCA approval and a strict adherence to DGCA's syllabus and guidelines is important. It's essential for aviation educational institutions to maintain high standards and comply with DGCA's requirements to ensure that students receive the necessary training and qualifications for careers in aviation.

These laws and regulations are designed to ensure the safety, efficiency, and development of civil aviation in India, covering various aspects from safety standards to industry policies and international agreements.

GOVERNING AVIATION AUTHORITIES

DIRECTORATE GENERAL OF CIVIL AVIATION

The primary responsibilities of DGCA encompass formulating and implementing air safety standards, regulating air traffic management, licensing pilots, air traffic controllers, and aircraft maintenance engineers, as well as certifying airports, airlines, and other aviation service providers. DGCA also conducts inspections, audits, and safety assessments to uphold compliance with national and international aviation regulations.

MINISTRY OF CIVIL AVIATION

The Ministry of Civil Aviation, operating at the central government level, plays a complementary role. It formulates and executes policies that contribute to the development and expansion of India's civil aviation sector. This includes planning for the growth of airports, fostering regional connectivity, and enhancing the overall air travel experience.

Together, DGCA and the Ministry of Civil Aviation ensure that India's civil aviation sector remains a thriving and secure industry, meeting the demands of a rapidly growing nation while adhering to global aviation standards. Their combined efforts are vital in fostering the continued growth and success of civil aviation in India.



TYPE OF COMPANIES UNDER THE AVIATION INDUSTRY

The aviation industry in India is diverse and comprises various types of companies that play essential roles in the sector. Some of the key types of companies in the Indian aviation industry include

- **Airlines:** These companies operate commercial flights, transporting passengers and cargo. Examples include Air India, IndiGo, SpiceJet, and Vistara.
- **Aircraft Manufacturers:** Companies involved in designing, manufacturing, and selling aircraft. In India, there are some companies involved in aircraft manufacturing, such as Hindustan Aeronautics Limited (HAL).
- **Airports:** Airport authorities and management companies are responsible for the operation and maintenance of airports. The Airports Authority of India (AAI) manages most of the airports in India.
- **Ground Handling Services:** These companies provide ground support services at airports, including baggage handling, aircraft maintenance, and fueling. Examples include Air India SATS and Celebi Delhi Cargo Terminal Management India.
- **Maintenance, Repair, and Overhaul (MRO) Companies:** MRO companies focus on the maintenance, repair, and servicing of aircraft and components. Examples include Air Works and GMR Aero Technic.
- **Training and Education Institutions:** Aviation training academies and institutions provide education and training for pilots, aircraft maintenance engineers, air traffic controllers, and other aviation-related professions.
- **Aircraft Leasing and Finance Companies:** These entities provide financing and leasing services for airlines and other aviation companies to acquire and manage aircraft.
- **Aviation Technology and Software Providers:** Companies that offer technology solutions, including software for aviation operations, airline management, and passenger services.
- **Cargo and Logistics Companies:** These firms specialize in the transportation and logistics of cargo, often in collaboration with airlines. Examples include Blue Dart and FedEx.
- **Aviation Consultancies:** Consultancy firms offer services such as market research, strategy development, and regulatory compliance guidance to various aviation businesses.
- **Aviation Security and Services:** Companies specializing in aviation security services, including passenger screening, baggage security, and other safety measures.
- **Travel Agencies and Ticketing Services:** These companies assist travellers in booking flights, accommodations, and other travel-related services.
- **Catering Services:** These companies assist travellers in booking flights, accommodations, and other travel-related services.
- **Insurance Companies:** Insurance providers offering aviation insurance for aircraft, passengers, and aviation-related risks.
- **Airport Retail and Duty-Free Operators:** Companies operating retail stores, duty-free shops, and other services within airports.

RESPONSIBLE PERSONNEL IN THE AVIATION INDUSTRY

AIRCRAFT MAINTENANCE ENGINEERS (AME)

They meticulously inspect, maintain, and repair aircraft to ensure they meet the highest safety standards. Their attention to detail makes every flight secure and reliable.

PILOTS

Responsible for the safe operation of the aircraft, pilots expertly navigate the skies, maintain flight safety protocols, and effectively communicate with air traffic control to ensure a seamless journey.

AIR TRAFFIC CONTROLLERS

They manage the movement of aircraft within the airspace and on runways, provide takeoff and landing clearances and are responsible for ensuring the safe separation of aircraft.

CABIN CREW

They prioritize passenger safety and comfort, conducting thorough safety briefings, delivering top-notch service, and responding with composure to any unexpected emergencies.

GROUND HANDLING PERSONNEL

The ground handling team ensures the smooth operation of aircraft on the ground. They handle baggage, refuel aircraft, conduct necessary maintenance, and provide catering services, all contributing to a seamless travel experience.

THE JOURNEY OF ASPIRING

Aircraft Maintenance Engineer





You can also explore your career in various departments of aviation as per the eligibility, apart from aiming to become a licensed engineer (after passing the necessary examinations as mentioned in CAR) or government post holders along with relevant DGCA Modules, with any DGCA-approved CAR 145 MRO

ALL ABOUT AIRCRAFT MAINTENANCE ENGINEERING

The Civil Aviation Industry refers to the segment of the aviation sector that primarily deals with civilian, non-military activities. It encompasses various aspects of commercial and private air travel, including passenger and cargo transportation, airport operations, aircraft manufacturing, maintenance, and related services.

When it comes to the operation of Commercial or Private Aircraft including, Passenger Aircraft & Cargo Aircraft owned by Airlines, Individuals, Corporates, Government Organizations (Central or State), Semi-Government Organizations, Public Enterprises, or Private Enterprises, falls under the purview of the Civil Aviation Department, Government of India and require day to day maintenance asper the national and international regulatory standards which has to be strictly followed by every country as per the rule of their land.

Importance Of Aircraft Maintenance Engineer's License: An Aircraft Maintenance Engineer's License is not merely a choice, it's a mandatory requirement for every Airline/company or individual having Aircraft in civil aviation. In essence, Aircraft Maintenance Engineering License holders, or authorized certifying Aircraft Maintenance Engineers, are an absolute mandatory requirement within every Maintenance Repair and Overhauling Organizations (MROs), particularly where registered civil aircraft under the Government of India's civil aviation authority are located (In India or in any other country).

Career as Aircraft Maintenance Engineer: A career as an Aircraft Maintenance Engineer offers an exciting and impactful journey within the aviation industry. The combination of technical expertise, safety consciousness, and commitment to excellence makes this role integral to ensuring safe flights for passengers and crew.

Before an aircraft takes-off from any Airports/Airstrips/Helipads in India, it must be certified as fit for flying in all respects by Licensed or authorized Aircraft Maintenance Engineer (AME). The certification provided by the authorized AME serves as confirmation that the aircraft is in compliance with safety regulations and is suitable for flight. This certification is a critical step before any aircraft can operate in Indian airspace. This process ensures strict adherence to the civil aviation regulations, which are designed to uphold the highest standards of aviation safety.

Responsibilities of Aircraft Maintenance Engineers: Aircraft Maintenance Engineering (AME) is indeed a job profile with extremely high responsibility, so it is ensured that, only capable candidates are awarded with this licence as per the CAR 66 regulations as this role is essential for the safe flying of aircraft. AMEs shoulder an enormous responsibility concerning the airworthiness and safety of an aircraft. Their role is critical in ensuring that an aircraft is fit for flight.

Once an aircraft is released for flight, there is zero tolerance for any untoward incidents. The safety of passengers, the aircraft, and surrounding infrastructure is paramount. The consequences of any lapses in maintenance or safety can be irreparable, both in terms of human lives and the integrity of aircraft and infrastructure. National and international aviation regulatory bodies take stringent measures to prevent untoward incidents during flight. They set and enforce strict international standards to ensure aviation safety.

As AME holds very big responsibility in ensuring the aircraft safety and airworthiness and is responsible for safe flying of aircraft which holds an utmost position an indeed hold a heroic role in the aviation industry. Their expertise and commitment to safeguard the lives of passengers and the integrity of aircraft.

Accordingly, Aircraft Maintenance Engineer's license are issued after ensuring the capabilities of candidates for such a highly precise post. Candidates are required to pass all the relevant module examinations (even if it takes several attempts for passing any particular module examinations), they have to obtain the aircraft maintenance experience from any MRO approved by DGCA, Govt. of India under CAR-145 regulations as defined in civil aviation rules (CAR-66).

Scope for Aircraft Maintenance Engineers: Generally, it is observed in the aviation industry that, "Where there is aircraft and maintenance activities are undertaken, there is a need for licensed Aircraft Maintenance Engineers (AMEs)". Civil Aviation authorities like the Directorate General of Civil Aviation (DGCA)-India, Federal Aviation Authority(FAA)-USA, European Aviation Safety Agency (EASA)-Europe and other respective regulatory bodies of 193 member countries of ICAO, mandates that all aircraft maintenance must be certified by licensed Aircraft Maintenance Engineers.

For every Indian registered aircraft under civil aviation department, regardless of their type (light aircraft, heavy aircraft, turboprop aircraft, jet engine aircraft, helicopters, etc.) and their purpose (passenger travel, cargo transport, air ambulance, joy rides, personal use, flying training etc.), the aircraft must receive a certificate of release from a licensed Aircraft Maintenance Engineer (AME) before it is allowed to fly regardless of whether it's departing from a smaller airstrip or aerodrome or from a major international airport.

In adherence to regulations set by the Directorate General of Civil Aviation (DGCA), Government of India, no Indian aircraft is permitted to take flight from any airport without possessing a valid certificate of release issued by licensed AMEs for any individual, corporate entity, or government-owned aircraft to operate. Similarly, maintenance of aircraft components/ engines and its systems whether carried out on aircraft or in the maintenance workshop or labs (MRO as per CAR-145 Regulations) are certified by licensed aircraft maintenance engineer or authorized certifying staff in order to release that component after the maintenance for service.

The growing number of aircraft being imported into India, whether for commercial airlines, corporate use, government operations, or other purposes, directly correlates with an increased demand for licensed AMEs. The requirement for licensed AMEs is on the rise due to the expanding aviation industry and the increasing number of aircraft operating in Indian airspace.

EXCLUSIVE PRIVILEGES TO AIRCRAFT MAINTENANCE ENGINEERS

In India, Directorate General of Civil Aviation (DGCA), Govt. of India is the sole regulatory body pertaining to the complete matters in civil aviation. All the rules and regulations framed in DGCA are in accordance with International Civil Aviation Organizations (ICAO) which is aviation specialised agency of the United Nations (UN). DGCA is responsible body for framing rules for licensing and issue to eligible competent candidates.

There is no alternative qualification for Aircraft maintenance certification except the Aircraft Maintenance Engineer's License (AME License) obtained in accordance with the requirements outlined in CAR-66 (Civil Aviation Requirement - 66) which is the primary and mandatory qualification for individuals responsible for certifying the airworthiness of aircraft. This license is issued by the Directorate General of Civil Aviation (DGCA) in India and is a legal requirement for those performing maintenance and certification tasks on aircraft. In other words, it is assumed that in the near vicinity of any Airport/ Airstrip/ Heliport where a Flying Aircraft is present with its maintenance activities, it is established that, all the maintenance activities are being certified by AME Licence holder.

In short, the requirement of an AME in any base where aircraft maintenance activities are undertaken can not be avoided for any aircraft as per the rule of the land. It is relevant to be mentioned that there are no substitutes or alternative methods that can replace the qualifications of an AME when it comes to aircraft maintenance and certification. Unlike in other organisations mostly when employment vacancies are posted in organisations like DRDO, HAL, NAAL etc other engineering graduates can also apply for the vacancies in aviation industry along with aeronautical and aerospace graduates / post graduates. But when it comes to licenced aircraft maintenance engineering vacancies for aircraft certification there is no any other alternative qualification. Therefore, the presence and involvement of AMEs in aircraft maintenance activities are essential and cannot be avoided as per the prevailing rules and regulations of DGCA as on date.



Obtaining an Aircraft Maintenance Engineer's License (AME License) from the Directorate General of Civil Aviation (DGCA) in India typically requires individuals to complete specific requirements and qualifications as specified in CAR 66 regardless of their academic background. While a Bachelor's Degree/ B.Tech/B.E/M.Tech/M.E/ Ph.D. even in Aeronautical Engineering or Aerospace Engineering from any Indian or international universities offers various employment opportunities in Aviation Field nationally and internationally , but it's mandatory to undergo the AME Licensing curriculum as defined in CAR-66 in order to become an Licensed Aircraft Maintenance Engineer across any of the aviation organisation where the maintenance of aircraft is undergone and is near to your residence.

ADVANTAGES TO THE STUDENTS OF

Aircraft Maintenance Engineering studying with the Institutions having Multiple MROs:

Diverse Learning Opportunities:

Students can gain exposure to a variety of aircraft types, systems, and maintenance practices when multiple MROs are involved.

Hands-On Experience:

Students have the opportunity to work on real aircraft, engines, and components, enabling them to apply theoretical knowledge in practical settings. This maintenance experience is invaluable for future AMEs.

Industry Insights:

Interacting with professionals from multiple MROs can provide students with insights into different company cultures, maintenance philosophies, and industry trends. This exposure can broaden their understanding of the aviation industry.

Industry-Relevant Training:

Multiple MRO partnerships mean that the curriculum is more likely to align with current industry standards and best practices. Students can be confident that they are learning the latest techniques and technologies used in the field.

Access to Advanced Facilities:

Institutions affiliated with multiple MROs often have access to state-of-the-art facilities, workshops, and equipment, which can enhance the quality of education and training.

How to become an AIRCRAFT MAINTENANCE ENGINEER



Kick Start career with DGCA Approved AME Institutions

Complete your course curriculum with maximum addition Practical Training

Clear semester examinations & required modules and obtain Certificate of Recognitions

Obtain required Maintenance Experience while working with DGCA approved MROs

Complete the specialized training/Type Training/OJT as per CAR 66 and apply for Licenses

Become the Aircraft Maintenance Engineer

Licensing Category		Maintenance Experience Required
Category B1.1	Aeroplanes Turbine	5Years
Category B1.2	Aeroplanes Piston	3Years
Category B1.3	Helicopters Turbine	5Years
Category B1.4	Helicopters Piston	3Years
Category B2	Avionics	5Years

WHAT IS AIRCRAFT MAINTENANCE EXPERIENCE?

Maintenance experience refers to the experience gained by aspiring candidates or individuals while working in the actual maintenance of aircraft, components, or systems in a controlled environment. An applicant for the AME licence must have completed a prescribed period of aircraft maintenance experience. This experience is gained in accordance with the rules framed by the respective regulatory bodies of a particular country in accordance with international standards specified by the International Civil Aviation Organization (ICAO) for maintaining aircraft, components, or systems. It is acquired under the supervision of a qualified person.

Candidates must gain practical maintenance experience on aircraft. The exact number of hours or years of experience required by DGCA under CAR-66 can vary depending on the category and sub-category of aircraft. This experience is usually obtained by working under the supervision of a licensed AME in DGCA approved CAR 145 Maintenance Repair & Overhauling Organisation (MROs)

This maintenance experience is only recognized when gained in a specified controlled environment under DGCA CAR-145 approved organizations (MRO) and under the supervision of qualified AMEs. In short, maintenance experience obtained under a CAR-145 (MRO) organization is crucial for the issuance of an AME license.

नागर विमानन मंत्रालय
MINISTRY OF
CIVIL AVIATION
सत्यमेव जयते

Directorate
General of
Civil Aviation

INDIAN AVIATION POLICIES

India has implemented several major aviation policies to regulate and develop its aviation sector. These policies encompass a wide range of areas, including air transport, safety, infrastructure development, and regional connectivity. Please note that there may have been updates or changes to these policies since then. Some of the major Indian aviation policies include:

NATIONAL CIVIL AVIATION POLICY (NCAP) 2016

NCAP was introduced to promote the growth of civil aviation in India. It includes provisions for regional connectivity, airport development, open-sky policies, and more.

REGIONAL CONNECTIVITY SCHEME (RCS) - UDAN

UDAN (Ude Desh Ka Aam Naagrik) is a part of NCAP aimed at enhancing regional air connectivity. It includes financial incentives for airlines and airport development in underserved and unserved regions.

OPEN SKY POLICY

The Open Sky Policy aims to liberalize air services agreements with other countries, promoting international air travel and trade.

DRAFT NATIONAL DRONE POLICY

This policy focuses on the regulation of drones and the development of drone-related activities in India.

CIVIL AVIATION REQUIREMENTS (CARS)

DGCA issues CARs, which specify safety and airworthiness standards, licensing requirements, and operational procedures for civil aviation in India.

AVIATION SAFETY POLICY

Safety policies and regulations are enforced to ensure the highest standards of safety in civil aviation operations.

AEROSPACE AND DEFENCE MANUFACTURING POLICY

This policy encourages domestic manufacturing and indigenous development of aircraft, avionics, and aerospace systems.

NATIONAL DRONE TRAFFIC MANAGEMENT POLICY

This policy aims to regulate drone operations and manage drone traffic in Indian airspace.

NATIONAL AVIATION PLAN (NAP)

The NAP outlines a comprehensive plan for the development and expansion of the aviation sector, including infrastructure development and increasing passenger capacity.

These policies collectively shape the Indian aviation sector, addressing safety, security, infrastructure development, and economic growth.



TYPE OF AIRCRAFT OPERATION

In India, various types of aircraft operations are taking place to support the country's diverse aviation needs. Some of the major types of aircraft operations in India include

Commercial Passenger Operations

Scheduled Airlines: Regular passenger flights operated by scheduled airlines, connecting major cities and airports.

Charter Flights: Non-scheduled passenger flights chartered by groups, corporations, or individuals for specific travel requirements.

Low-Cost Carriers: Airlines offering budget-friendly air travel options, catering to a wide range of passengers.

General Aviation

Private and Business Aviation: Private individuals, businesses, and corporations operate aircraft for personal travel, business purposes, or corporate aviation.

Aerial Work: Activities like aerial photography, surveying, crop dusting, and banner towing are part of general aviation operations.

Aerial Tourism

Aerial Sightseeing: Companies offer aerial tours and sightseeing flights to explore India's scenic beauty from the sky.

Helicopter Tourism: Helicopter services provide access to remote and tourist destinations.

Aircraft Training and Education

Flight Training Schools: Institutions that offer pilot training programs.

Aircraft Maintenance Engineering (AME) Schools: Schools that train individuals to become AMEs.

Emergency and Medical Services

Air Ambulance: Aircraft are used for medical transportation, providing emergency services and critical patient transfers.

Cargo and Freight Operations

Air Cargo: Transporting goods and freight via air, serving as a crucial mode for transporting time-sensitive and high-value goods.

Express and Courier Services: Companies like DHL, FedEx, and Blue Dart operate air freight services to ensure quick and efficient delivery of packages.

Government and Defense Operations

Military Aviation: The Indian Air Force (IAF) and other defence organizations operate military aircraft for national security and defence purposes.

Government Aircraft: Various government agencies and state governments use aircraft for transportation and official purposes.

Aircraft Maintenance and Repair

Aircraft Maintenance, Repair, and Overhaul (MRO) Facilities: The Indian Air Force (IAF) and other defence organizations operate military aircraft for national security and defence purposes.

Agricultural Aviation

Crop Dusting: Aircraft are used for agricultural purposes, such as pesticide spraying and crop protection.

Search and Rescue Operations

Aircraft are used in search and rescue missions, particularly in remote and disaster-stricken areas.

Remote Sensing and Survey

Aerial surveys and remote sensing are employed for mapping, disaster management, and environmental monitoring.

AVIATION STATISTICS

India is expected to overtake China and the United States as the world's third-largest air passenger market in the next ten years, by 2030, according to the International Air Transport Association (IATA). Further, the rising demand in the sector has pushed the number of aeroplanes operating in the sector. The number of aeroplanes is expected to reach 1,100 planes by 2027.

25%
Passenger Traffic Growth

109%
Foreign Tourist Arrival growth

4.2
Total Freight Traffic (MMT)

45.9%
Domestic Aircraft Movement Growth

MAJOR DEVELOPMENTS

Passenger Footfall

In 2010, 79 Mn people travelled to/from/or within India. By 2017 that doubled to 158 Mn, and this number is expected to treble to 520 mn by 2037. The nation's aeroplane fleet is projected to quadruple in size to approximately 2500 aeroplanes by 2038.

Airports

Currently, the country has 131 operational airports including 29 international, 92 domestic, and 10 custom airports. To meet the growing demand for air travel in India, it has become imperative to increase the capacity of airport infrastructure.

MRO Sector

The projected upsurge in air travel in India would require more aircraft usage, further igniting the demand for Maintenance, Repair and Overhaul (MRO) services. The Indian Civil Aviation MRO market stands at around $900 mn and is anticipated to grow to $4.33 bn by 2025 increasing at a CAGR of about 14-15%.

UDAN Scheme

To augment the airport infrastructure the government aims to develop 100 airports by 2024 (under the UDAN Scheme) and expects to invest $1.83 bn in the development of airport infrastructure by 2026. To date, 74 airports have been developed.

MAJOR INVESTORS

South African Airways · Singapore Airlines · Etihad Airways · Boeing · Honeywell Aerospace · AirAsia · Airbus · Frankfurt Airport · Malaysia Airports · Rolls-Royce · Safran

(Source: ibef.org, investindia.gov.in)



MAJOR NATIONAL & INTERNATIONAL RECRUITERS IN AVIATION

AirAsia
AIR HERITAGE
AIR INDIA
Deccan
Simply fly
ExecuJet
LUXAVIATION GROUP
FLY SMART
IndiGo
पवन हंस लिमिटेड
Pawan Hans Limited
SpiceJet
Red. Hot. Spicy.
STAR air
INTERNATIONAL AIRCRAFT SALES PRIVATE LIMITED
WINGS AVIATION ACADEMY
طيران الخليج
Gulf Air
BSF
الإتحاد
ETIHAD AIRWAYS
ABU DHABI
TELANGANA STATE AVIATION ACADEMY
Emirates
Carver Aviation
Success is a reality
Interiors
Aeroservices
Aero Technics
Airframe Service Technologies
PATIALA AVIATION CLUB
Air One
Integrated aviation Company
AAA
AIRWORKS
FLY ASSURED
ALCHEMIST
ARROW AVIATION
ACS College of Engineering
aviation
Raymond LIMITED
CAA
Chimes Aviation Academy
BLUE DART
Aviation Limited
BlueRay Aviation
AEROSPACE & AVIATION
Technical Services Limited
Aerospace Research & Development Center
NFTI
National Flying Training Institute
DIRECTORATE OF CIVIL AVIATION
CIAL
COCHIN INTERNATIONAL AIRPORT LIMITED
झारखण्ड सरकार
Sky Waltz
epsilon
aerospace
Indamer
We Know Your Aircraft
Enhancing Lives Globally
GHODAWAT AVIATION
Global Konnect
Global Vectra Helicorp
GMR
Aero Technic
HELI GO
CHARTERS PVT. LTD.
HIMALAYAN
HAL
Hindustan Aeronautics Limited
AMBITIONS FLYING CLUB PVT. LTD.
INSTRULAB
A Division of TE Brown LLC
INDOCOPTERS
INNOVATIVE
You fly We Care
INVISIONAIR
KESTREL
AVIATION MANAGEMENT
JSA
Connecting Aviation Industry
NANO AVIATION
KRIS AERO
SERVICES PVT. LTD.
MAGNUM AVIATION
We contribute to safe flying
MAHARAJA AVIATION PVT LTD
Max MRO
AIR ASSET & MRO NETWORK
Minerva Aviation Services
VERTICAL
Aerospace
ORIENT
FLIGHTS
OSS
air management
पवन हंस लिमिटेड
Pawan Hans Limited
BIHAR FLYING INSTITUTE
RIGHT CHOICE AVIATION
Magnifying Imagination
GUJARAT FLYING CLUB
vistara
saarthi airways
fly with confidence.
SHAURYA AERONAUTICS Pvt. Ltd
SIMMSAMM
AIRWAYS PVT LTD
SKYONE AIRWAYS
TAAL
Tentacles
Keeps You Flying
TATA
TATA POWER
Thumby
TURBO
United Helicharters Pvt. Ltd
Vandana Aircraft Services Pvt. Ltd.
Asia Pacific Flight Training

ABOUT SHA-SHIB GROUP OF INSTITUTIONS

33 years of EDUCATIONAL EXCELLENCE

In the realm of aviation and engineering education, the Sha-Shib Group reigns supreme, exemplifying excellence, global reach, and unwavering commitment to producing top-notch aviation professionals.



Pinnacle of Excellence: With a remarkable legacy spanning 33 years, the Sha-Shib Group stands as South Asia's premier institution for Aircraft Maintenance Engineering Training.

Global Presence: A trailblazer on the education landscape, the group's influence extends beyond borders, reaching across India, UK, and USA.

Elite DGCA Approvals: Boasting 9 DGCA-approved Aircraft Maintenance Engineering colleges, the group is at the forefront of producing skilled aviation professionals.

Authorised MROs: With over 10 DGCA-approved Maintenance, Repair, and Overhaul (MRO) organisations, the Sha-Shib Group ensures industry-relevant training.

Aviation Hub: A presence at 7 strategic Indian airports showcases the group's commitment to real-world exposure and practical learning.

Unmatched Success: Setting records, the group stands as the first in India to achieve a 100% pass rate in DGCA Paper-I.

Expert Leadership: Guided by a Centralised National Academic Council led by former DGCA officials and industry experts, the group assures top-tier education.

Fleet of Aircraft: More than 28+ live and functional Aircraft enrich the learning experience, providing hands-on training at various campuses.

32+ Years of Educational Excellence

06+ MRO Companies in India

07+ Airport Presence in India

09+ Aircraft Maintenance Engineering Institutes

15+ Licensed Engineers as Mentors

12+ Practical Tie-Ups for Training

04+ Country Presence

25+ Functional & live Aircraft for Practical

COURSES SHA-SHIB GROUP OFFER

Aviation Courses

- Aircraft Maintenance Engineering
- Commercial Pilot Licence Training
- Aeronautical Engineering
- BBA Aviation
- Air Hostess & Cabin Crew Training

Exclusive Dual Programs

- Aircraft Maintenance Engineering + B.Tech (Mechanical)
- Aircraft Maintenance Engineering + B.Tech (EC or CS)
- Aircraft Maintenance Engineering + B.E (Aeronautical)
- Aircraft Maintenance Engineering + B.Sc. (General/Aviation)
- Aircraft Maintenance Engineering + BBA (General/Aviation)
- Aircraft Maintenance Engineering + BCA

Engineering Courses

- Aeronautical Engineering (BE)
- Mechanical Engineering (BE/B.Tech)
- Computer Science Engineering (BE/B.Tech)
- Electronics & Communication Engineering (BE/B.Tech)
- Civil Engineering (BE / B.Tech)

Science & Management (UG)

- B.A. (History - Political Science - Sociology)
- B.A. (Economics - Political Science - Sociology)
- B.A. Journalism
- B.B.A.
- B.C.A.
- B.Sc. (Botany - Chemistry - Zoology)
- B.Sc. (Biotechnology - Botany - Chemistry)
- B.Sc. (Biotechnology - Botany - Zoology)
- B.Sc. (Chemistry - Microbiology - Zoology)
- B.Sc. (Chemistry - Computer Science - Physics)
- B. Sc. (Computer Science - Mathematics - Physics)
- B. Sc. (Chemistry - Mathematics - Physics)
- B.Sc. (Fashion Apparel Design)
- B.Com (Computer Application)
- B.Com (Commerce)
- B.Sc. (Aircraft Maintenance Engineering)
- B.Sc. (Aviation)

Science & Management (PG)

- M. Sc. (Botany)
- M. Sc. (Zoology)
- M. Sc. (Biotechnology)
- M. Sc. (Microbiology)
- M. Sc. (Computer Science)
- M. Sc. (Physics)
- M. Sc. (Chemistry)
- M. Sc. (Physics)
- M.Com. (Accounting)
- M.Com. (Management)
- M. A. (English)

B.Ed. Bachelor of Education

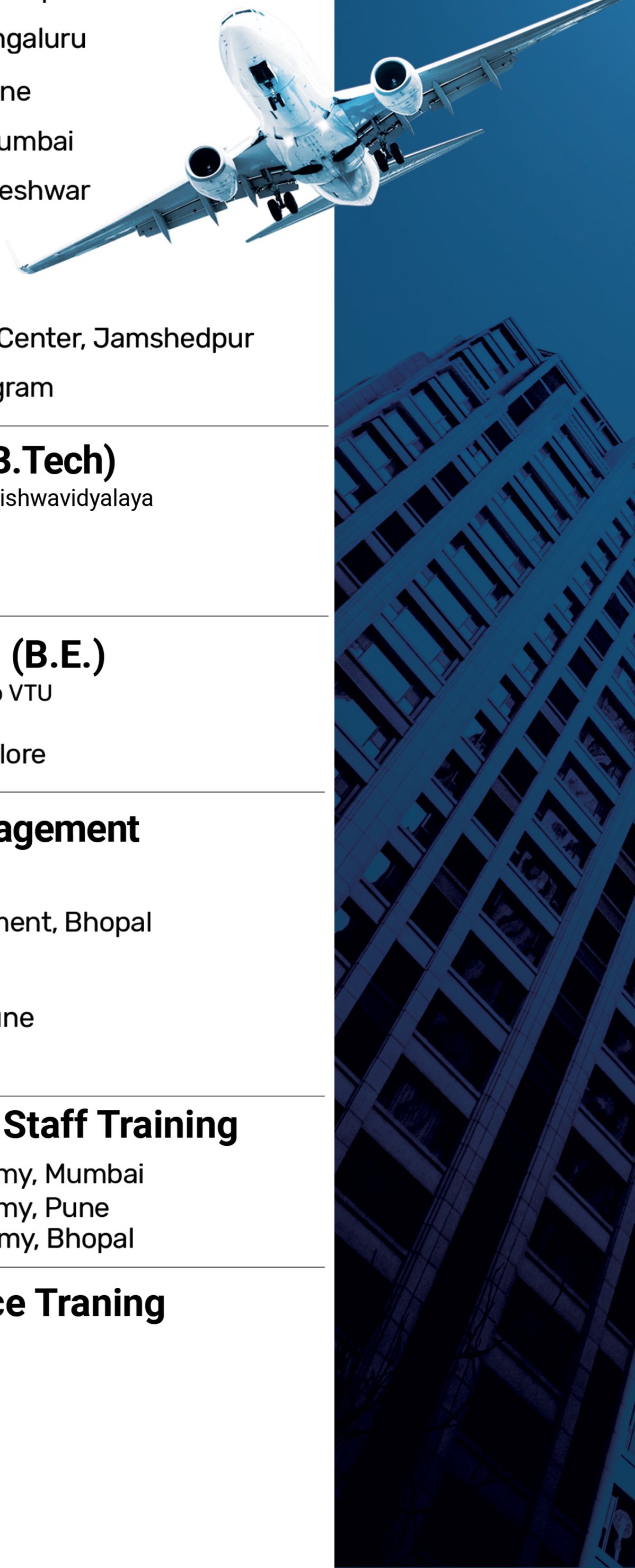
For detailed information about the eligibility criteria for admission in any of the above courses, including available seats and fees, kindly visit: www.ssatindia.com.

SHA-SHIB GROUP OF INSTITUTIONS

Institutes for Aircraft Maintenance Engineering (AME)

Approved by DGCA, Govt. of India, under CAR-147 (B)

- Institute of Aeronautics & Engineering, Bhopal
- Academy of Aviation & Engineering, Bengaluru
- Hindustan Aerospace & Engineering, Pune
- Indian Aerospace & Engineering, Navi Mumbai
- Utkal Aerospace & Engineering, Bhubaneshwar
- Sha-Shib Aviation Academy, Cochin
- Sha-Shib Flying Academy, Guna
- Aerospace Research and Development Center, Jamshedpur
- Sha-Shib Aerospace Engineering, Gurugram



Institutes for Bachelor of Technology (B.Tech)

Approved by AICTE and affiliated to Rajiv Gandhi Proudyogiki Vishwavidyalaya

- Sha-Shib College of Technology, Bhopal

Institutes for Bachelor of Engineering (B.E.)

Approved by AICTE, New Delhi, Govt. of India and Affiliated to VTU

- Sha-Shib College of Engineering, Bangalore

Institutes for Applied Science and Management

Approved by AICTE and affiliated to Barkatullah University

- Sha-Shib College of Science & Management, Bhopal
- Sha Shib College, Bengaluru
- Hindustan Aerospace & Engineering, Pune
- S S Degree College, Chikkaballapur

Institutes for Air Hostess and Ground Staff Training

- Quetzal Air Hostess & Hospitality Academy, Mumbai
- Quetzal Air Hostess & Hospitality Academy, Pune
- Quetzal Air Hostess & Hospitality Academy, Bhopal

Institutes for Commercial Pilot Licence Traning

Approved by DGCA. Gov. of India

- Sha-Shib Flying Academy, Guna (MP)

Upcoming Flying Training Organisations :

Ratlam, Chhindwara

SHA-SHIB GROUP'S EXCLUSIVE DUAL PROGRAM

Are you looking to maximise your career potential and seize exciting opportunities in the aviation industry?

Look no further! We are thrilled to present our exclusive Dual Course Programs, meticulously designed to provide you with a competitive edge and amplify your prospects. At our AME institutes, we deeply understand the value of specialised knowledge and expertise in the field of aviation maintenance. That is precisely why we facilitate the students undergoing Aircraft Maintenance Engineering course at our renowned institutions, to pursue an additional degree program from UGC recognised universities in Distance/Online/Regular mode asper the avaibility of courses in the near vicinity of our campuses, which offers you a comprehensive skill set that sets you apart from the competition.

- Aircraft Maintenance Engineering + B.Tech (Mechanical)
- Aircraft Maintenance Engineering + B.Tech (EC or CS)
- Aircraft Maintenance Engineering + B.E (Aeronautical)
- Aircraft Maintenance Engineering + B.Sc. (General/Aviation)
- Aircraft Maintenance Engineering + BBA (General/Aviation)
  Aircraft Maintenance Engineering + BCA

Having a graduation degree along with an Aircraft Maintenance Engineering (AME) licence can offer several significant benefits, as it combines both technical expertise and a broader educational bac ground. Here are some advantages:

What makes this program unique?

Enhanced Career Opportunities:

By combining knowledge from different disciplines other than AME, you become eligible for a wider range of job opportunities. This can give you a competitive edge in job applications and career advancement. Sha-Shib Group's Dual course broadens your knowledge, making you versatile in various areas. This diverse skill set can be highly valuable in today's dynamic job market. This expands your professional network, potentially opening doors to opportunities you might not have encountered otherwise.

Time-saving:

Imagine completing AME training and a Bachelor's Degree separately, which would take a total of 7 years. With Sha-Shib's dual-course program, you can accomplish both courses in just four years, saving valuable time and accelerating your entry into the workforce.

Personality development:

The dual-course program fosters multidisciplinary knowledge and prepares you to be job-ready. Juggling multiple tasks simultaneously enhances your personality, equipping you to thrive in a competitive workplace and adapt to challenging situations. The ability to apply diverse knowledge in real-life working environments is highly valued by potential employers.

SHA-SHIB CENTRALISED ACADEMIC COUNCIL

With numerous colleges, institutions, and MRO industries within the group, a pool of highly qualified and experienced experts is available as mentors for students in Sha-Shib Group. These mentors guide, train, motivate, and assist students throughout their careers. The mentors of the Sha-Shib Group include high-profile professionals from the aviation industry, such as former DGCA officials, former Air Force officials, licensed aircraft maintenance engineers, quality managers, accountable managers, training managers, aircraft maintenance managers, continuing airworthiness managers, chief flying instructors, professors/ lecturers in various subjects like engineering science, Ph.D. holders, and more.







Mr. OP Rana

Chief Operating Officer | Sha-Shib Group

Ex. Official, Directorate General of Civil Aviation, Govt. of India
Ex. Associate Vice President | Air Works
Ex. Head of Engineering & Quality | Indamer
Ex. Quality Manager Approved by DGCA, EASA, GCAA, San-Marino, Caymen etc.
(Sr. Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA)
AME Licence for Boeing 737- 700/800/900, Embraer EMB 135, Embraer EMB 500, Beechcraft B 200 series



Mr. Debashish Mohanthy

General Manager | Sha-Shib Group

(Accountable Manager | Utkal Aerospace & Engineering)
(Accountable Manager | Sha-Shib Flying Academy)
Workshop Maintenance Manager | International Aircraft Sales Pvt. Ltd.)
(Sr. Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA)
AME Licence for Cessna 172R series, Cessna 152 Series, P-68C series, Thorp T 211 aircrafts



Mr. Abdul Naim Raza

Chief Engineer | Sha-Shib Group

(Sr. Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA)
AME Licence for Cessna 172 & Cessna 152, NDT level II approval issued by DGCA



Mr. Sharad Pawar

(Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA)

AME Licence for Cessna 172 and Diamond DA42 Aircraft.



Mr. V. A. Antony

(Sr. Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA)

AME Licence for Basant HA 31 MK-II, Cessna 152, Cessna 172, Dakota DC3 3, Eurocopter SA 316B, Hansa 3, IslanderBN-2T, Piper PA- 23 Aztec Thorp T211, VulcanairP68 Series etc



Mr. Bunty Biswas Singh

Sr. Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA

AME Licence for Cessna 152, NDT level II approval issued by DGCA.



Mr. Nitesh Tiwari

Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA

AME Licence for Cessna/REIMS-Cessna 172/F172 Series, Vulcanair P68, PiperPA34 Series



Mr. Ramesh Chandra Verma

Aircraft Maintenance Manager | Aerospace Research and Development Center

(Ex. official | Hindustan Aeronautical Limited)
(Ex. official | Directorate of State Civil Aviation)
(Sr. Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA)
AME Licence for Pushpak MK-I, Piper Cub J3C,
Piper Super Cruiser PA-I2, Cessna FA-152, Cessna 172R, Beech Baron B-55 and G-58 etc.



Mr. Atul Pandey

Licenced Aircraft Maintenance Engineer, AME Licence issued by DGCA

AME Licence for Cessna 172, DA-40, DA-42 & Piper Seneca aircraft



Hemendra Singh Chauhan

Aircraft Maintenance Engineer | Aerospace Research and Development Center

Having Aircraft Maintenance Experience of more than 4 years.



Mr. Sudipta Datta

Head of Training | Sha-Shib Group

Ex. Joint Directorate General of Civil Aviation, Govt of India
While in DGCA looked after airworthiness aspects of all civil registered aircraft,
MRO approval activities, audits, surveillance, enforcement and training activities etc.



Mr. T.K.V. Sagar

Accountable Manager |
Hindustan Aerospace & Engineering)
Accountable Manager |
Indian Aerospace & Engineering
(Ex. Official, Directorate General of Civil Aviation, (Aeronautical),
Govt. of India)



Mr. P. K. Shrivastava

HR of Training & Placement |
Sha-Shib Group
(Training Manager |
Hindustan Aerospace & Engineering)
(Ex. Indian Air Force Official, Govt of India)



Mr. Rumman Akhtar

Training Manager |
Institute of Aeronautics & Engineering
(Aircraft Maintenance Engineering Instructor,
Approved by Directorate General of
Civil Aviation, Govt. of India)



Mr. Swagat Prasad Das

(Training Manager |
Utkal Aerospace & Engineering)



Captain Parag Das

Chief Flying Instructor |
Sha-Shib Flying Academy
Ex. Flight Safety Officer, Ex. HR Manager
(Experience of more than 5700 hours of instructional flying
on single and multi-engine aircraft)
(CPL holder (Open Rating) in all type of Single Engine Aircraft &
Multi Engine (Open Rating) for All categories of P68 Aircraft
Licence issued by DGCA, Govt. of India)



Captain A. K. Jha

Chief Ground Instructor for Pilot |
Sha-Shib Flying Academy
(Ex. Aerodrome Officer | DGCA, Govt. ofIndia)
(Ex. Asst. Director | DGCA, Govt. of India)
(Ex. Dy. General Manager | Airport Authority of India)
(Ex. CPL holder (Open Rating) in all type of
Single Engine Aircraft
| Licence issued by DGCA, Govt. of India)



Dr. Jaya Peter

Academic Head | Sha-Shib College of
Science and Management
M.Sc , Ph.D in Life Sciences
M.P. Young Scientist Award in Zoology, 1996.
National Award in Literature for Child, 1981.
International Leadership Award, 1998.



Dr. D. K. Gangwar

Principal | Sha-Shib College of Technology
(Ph.D. in Electronic & Communication Engineering)



Mrs. Shital kshirsagar

Training Manager, Sha-Shib Mumbai
Having more than 13 years of experience in
teaching and holding posts of Examination Manager,
Chief Instructor senior instructor etc.



Mr. Raj Kanwar

Head of Quality | Sha-Shib Group

Ex. Director of Airworthiness, Directorate General of Civil Aviation, Govt of India
Ex. Director of Air Transport, Directorate General of Civil Aviation, Govt of India
Type Training 787, A 320, B 737-NG, 737-200, ATR 42, Gulfstream 150, (Specialized
Advance Airworthiness Inspector Training, Advance SMS Training, Senior
Management Training) by Internatinoal Civil Aviation Organisation (ICAO)



Mr. Pankaj Jha

Director Admin |
Sha-Shib College of Engineering
(Accountable Manager | Academy of Aviation & Engineering)
(Accountable Manager | Sha-Shib Aviation Academy)



Mr. Ashok Singh

(Director Admin |
Sha-Shib College of Technology)
(Accountable Manager | Institute of Aeronautics & Engineering)
(Accountable Manager | Sha-Shib Aerospace & Engineering)
(Accountable Manager | International Aircraft Sales Pvt. Ltd.)



Mr. Nasir Rizwan

Quality Manager |
Endeavor Aviation SARL International
Approved by EASA, ANAC International
Civil Aviation Authorities.



Mr. Abhishek Singh

Aircraft Maintenance Manager |
Sha-Shib Flying Academy
(Licenced Aircraft Maintenance Engineer,
AME Licence issued by DGCA)
AME Licence for Cessna/REIMS-Cessna 172/F172 Series



Mr. Anupam Singh

Accountable Manager |
Aerospace Research & Development Center
(Quality Manager |
Indian Aerospace & Engineering)



Mr. Samir Kumar Rath

Quality Manager |
Utkal Aerospace & Engineering MRO

Mr. Rama Shankar

Quality Manager |
International Aircraft Sales Pvt. Ltd.
Basic Aircraft Maintenance Engineering Certificate
(BAMEC) in B1.1, B1.2, & B2

Mr. Chandrabhanu Mohanthy

Workshop Maintenance Manager |
Utkal Aerospace & Engineering

Mr. Vibhum Vishnoi

Quality Manager |
Institute of Aeronautics and Engineering
Having more than 12years of Experience in
Aviation Industry, He is well known in Mentoring
the AME Students for their Academy and career

SHA-SHIB ADVANCED TRAINING PROGRAM

The only advanced training program for AME students run by Sha-Shib Group of Institutions

DO LEARN GROW
INDUSTRY 4.0 TRAINING DIVISON
SHA-SHIB ADVANCED TRAINING PROGRAM
DOING IS LEARNING







Sha-Shib Group provides rigorous training to Aircraft Maintenance Engineering students across all its institutes. The training follows the syllabus framed by the DGCA and includes theoretical sessions in the classroom and practical sessions in labs and workshops.

To provide more advanced hands-on training to the students and give them an edge over other aviation industry, Sha-Shib Group has designed the 'Advanced Training Program' exclusively for its students. The program prepares the students for their future careers by providing them with exposure to an auxiliary training program. This includes:

- → Familiarization with the functioning of Maintenance Repair & Overhaul Organizations(MRO) at Sha-Shib Group's own MROs
- → Familiarization with the functioning of Continuing Airworthiness Management Organizations (CAMOs) at Sha-Shib Group's own CAMOs.
- → Aircraft System Description Training on Live and Functional Aircraft placed at various institutes, maintenance companies etc.
- → Advanced training by industry experts in specialized equipment and system operations at Sha-Shib Group's BMTO laboratories.
- → The program includes industry based Soft Skill training & organisational behaviour.

The program also includes modules focused on enhancing the communication skills of the students. Overall, the Sha-Shib Advanced Training Program equips the students with comprehensive and advanced training that prepares them for success in the aviation industry while they earn their license from DGCA.









SHA-SHIB CENTRALISED ACADEMIC ACTIVITIES

Sha-Shib Group's colleges are located in different locations and are approved by respective regulatory authorities. This provides significant advantages to students, as they have access to subject experts who can offer additional support if needed, facilitating a better understanding of subject knowledge and learning.

With students working both in India and abroad, the Sha-Shib Group boasts a vast alumni network. This alumni support system works in favour of current students through timely interactions, grooming, and job support, serving as a source of motivation.

Sha-Shib Group organizes a range of educational activities and programs designed for all students enrolled in its various institutions. These activities take place on a common shared platform under the Advanced Training Program and are subjected to oversight and supervision by the Sha-Shib Centralized Academic Council.

This common plaftorm to all the students encourages collaboration among students and faculty members from different institutions within the Sha-Shib Group. This aims to foster a diverse and enhancing learning environment across Sha-Shib Group.

Key activities under the Centralised Academic Council:

- Centralised Assessment of academic process
- Centralised Module wise Test Series
- Satellite session by Industry experts
- Inter institution competitions
- QA Sessions for different topics
- Group Discussion among different institutions in a controlled environment



The Sha-Shib Group offers additional training facilities in addition to CAR-147 (Basic) training, which are as follows on demand at additional actual cost:

- CAR-145 on-the-job training
- CAR-M subpart (G) CAMO on-the-job training
- Quality Department on-the-job training
- CAR-147 Type-rated training on demand and with approval from DGCA, depending upon the availability of aircraft at their MRO facility.
- RTR Classes
- NDT Classes
- Human Factor Training
- Safety Management System (SMS) Training
- Train The Trainer
- Continuation Training (CAR-145, CAR-M, CAR-21, Human Factor & SMS)

SHA-SHIB GROUP'S TECHNICAL INFRASTRUCTURE

SHA-SHIB GROUP'S INDUSTRY SUPPORT & PRACTICAL FACILITIES

6+ Airport Presence

6+ MROs Aircraft Maintenance Companies

15+ Tie-Ups with Airlines & MRO Companies

28+ Aircraft (Live & Functional for Practical Training)

Sha-Shib Group's Technical infrastructure which includes the laboratories of DGCA approved AME institutes, Facilities at its Government approved Maintenance Repair & Overhaul companies of Aircraft and Its components , Facilities available at various Aircraft Hangers at Airports leased by Sha-Shib Group , facilities available at the contracted Maintenance Companies and Airlines , Practical facilities on the Aircraft placed at various campuses of Sha-Shib Group across India etc., allows students to gain practical experience in real-world aircraft maintenance scenarios. This hands-on training is invaluable for students undergoing Aircraft Maintenance Engineering Course.

Practical training holds immense significance in an aviation career, particularly within Aircraft Maintenance Engineering (AME). Maintenance experience refers to the hands-on Involvement of aspiring candidates or individuals in aircraft, components, or systems maintenance within a controlled environment. An applicant seeking an AME license must fulfill a stipulated duration of aircraft maintenance experience, adhering to regulations set forth by respective national aviation authorities in line with International Civil Aviation Organization (ICAO) standards. This experience is garnered under the guidance of qualified professionals.

Notably, the Sha-Shib Group of Institutions operates six MROs and maintains affiliations with over a dozen additional MROs and airline companies across India. With ten bases and subbases for aircraft and component maintenance systems, the group provides a controlled learning environment essential in aircraft maintenance. This experience complements obligatory outsourced practical training with airlines and MROs. Furthermore, the Sha-Shib Group boasts ownership of three DGCA-approved Continuing Airworthiness Management Organizations (CAMOs) under CAR-M. Subpart-G regulations. This empowers students to cultivate airworthiness management skills within a controlled setting enhancing knowledge gained from mandatory external practical training.

SHA-SHIB GROUP'S PRACTICAL TIEUPS

IAS International Aircraft Sales Private Limited

GO FIRST

Sha-Shib Flying Academy — Flying is an Art

SHA-SHIB FLYING ACADEMY

Deccan Simply fly

flybig

AIRWORKS FLY ASSURED

Ardc Aerospace Research & Development Centre (A Unit of International Aircraft Sales Pvt. Ltd.) Committed for Quality and Safety A Firm Approved By DGCA, Govt of India Under CAR 145

Hindustan Aerospace & Engineering H.A.E. MAY GOD BLESS US

Indian Aerospace & Engineering M.R.O. MAY GOD BLESS US

MJETS INDAMER SERVICE PERSONALISED

AIESL AI Engineering Services Limited

Indamer We Know Your Aircraft

INDOCOPTERS

AAR-INDAMER Aircraft Maintenance Infrastructure Company

SHA-SHIB GROUP'S AIRPORT PRESENCE

- **Sonari Aerodrome**
  Sonari, Jamshedpur, Jharkhand
- **Guna Airport**
  Guna, Madhya Pradesh
- **Ratlam Airstrip**
  Ratlam, Madhya Pradesh
- **Chhindwara Airport**
  Chhindwara, Madhya Pradesh
- **Biju Patnayak International Airport**
  ARDC, Near CUDCT, Bhubaneswar, Orissa
- **Karad Airport**
  Karad, Maharashtra
- **Mandsaur Airport**
  Madhya Pradesh

Sha-Shib Group's presence at six domestic and international airports allows students to gain insights into actual aircraft operations and maintenance practices. This encompasses diverse activities such as daily inspections, taxiing operations, preflight and postflight checks, MEL process adherence, refueling procedures, day and night flight operations, a-ircraft marshaling, mooring, ground support, fire safety, and live airport traffic control observations. This unique exposure sets the Sha-Shib Group apart from other institutions, offering students a comprehensive and immersive aviation education.

SHA-SHIB GROUP'S AIRCRAFT MAINTENANCE REPAIR & OVERHAUL ORGANISATIONS (MROs)

APPROVED BY DGCA, GOVT. OF INDIA UNDER CAR 145 REGULATIONS

- Indian Aerospace & Engineering, Mumbai
- Hindustan Aerospace & Engineering, Karad
- Hindustan Aerospace & Engineering, Pune
- International Aircraft Sales Pvt Ltd , Bhopal
- International Aircraft Sales Pvt. Ltd, Mandsaur, Madhya Pradesh
- Aerospace Research & Development Center, Jamshedpur
- Aerospace Research & Development Center, Guwahati
- Aerospace Research & Development Center, Bhubaneswar
- Utkal Aerospace & Engineering, Bhubaneswar
- Sha-Shib Flying Academy, Guna



UPCOMING MROs AT:

- Noida
- Ratlam
- Chhindwara
- Bengaluru
- Kochi

The MROs of Sha-Shib Group maintain many aircraft and its components at more than 9 Bases, airports & sub bases across India. Which are approved by DGCA Govt. of India under CAR-145 regulation. Such organizations open opportunities to strengthen the practical hands of AME students and also considerable number of employments for the AME passed out students.

28+ LIVE AND FUNCTIONAL AIRCRAFT PLACED AT VARIOUS CAMPUSES OF SHA-SHIB GROUP ACROSS THE COUNTRY

Sha-Shib Group provides advanced training to AME students in different types of live aircraft, such as Cessna 172, Piper, P68, and Thorp, at our DGCA-approved MROs/CAMOs. Additionally, we offer training on functional aircraft like Fokker F-27, Learjet, Cessna 172, Bonanza, Puspak, Navion, Thorp, etc., at our DGCA-approved AME institutes located at different locations across the country.

This type of training on various aircraft and their variants helps students understand and gain practical experience, enabling them to become competent and knowledgeable engineering professionals ready to face the challenges of the aviation industry. For example, we have three Lear Jet aircraft of different models, such as Learjet 25 and Learjet 45 each with different configurations and systems. This exposure provides students with detailed knowledge and extensive experience.



FOKKER F-27 FRIENDSHIP (FUNCTIONAL AIRCRAFT)

Indian Aerospace & Engineering (Mumbai)
Engine – fitted with General Electric (Single-rotor axial-flow Turbo Jet)



BEECHCRAFT BONANZA A35 (FUNCTIONAL AIRCRAFT)

Indian Aerospace & Engineering (Mumbai)
Engine - fitted with CONTINENTAL MOTORS IO-550-B (Piston engine)



LUSCOMBE 8A SILVAIRE (FUNCTIONAL AIRCRAFT)

Hindustan Aerospace & Engineering (Pune)
Engine - fitted with Piston Engine



PIPER PA-25 260 PAWNEE (FUNCTONAL AIRCRAFT)

Hindustan Aerospace & Engineering (Pune)
Engine-Lycoming O-320



NAVION (FUNCTIONAL AIRCRAFT)

Academy Of Aviation & Engineering (Bangalore)
Engine - fitted with Continental E-185 (variable pitch propeller engine)



LEARJET 25 (FUNCTIONAL AIRCRAFT)

Academy Of Aviation & Engineering (Bangalore)
Engine – fitted with General Electric (Single-rotor axial-flow Turbojet



PUSHPAK (FUNCTIONAL AIRCRAFT)

Academy Of Aviation & Engineering (Bangalore)
Engine –Continental E-185 (Variable pitch propeller Engine)



BONANZA A35 (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine - fitted with Continental Motors E-185 (Piston engine)



PUSHPAK (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine-Lycoming O-320



PIPER (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine - fitted with flat-4)(piston engine)



PIPER (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine - fitted with flat-4 (piston engine)



PIPER (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine - fitted with flat-4 (piston engine)



PIPER (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine - fitted with flat-4 (piston engine)



PIPER (FUNCTIONAL AIRCRAFT)

Institute of Aeronautics & Engineering (Bhopal)
Engine - fitted with flat-4 (piston engine)



LEARJET B25 (FUNCTIONAL AIRCRAFT)

Utkal Aerospace & Engineering (Bhubaneshwar)
Engine – fitted with General Electric (Turbo-Jet Engine)



BEECHCRAFT BONANZA A35 (FUNCTIONAL AIRCRAFT)

Utkal Aerospace & Engineering (Bhubaneshwar)
Engine - fitted with Continental Six cylinder opposed-185 (Piston engine)



PUSHPAK (FUNCTIONAL AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine –Continental E-185 (Variable pitch propeller Engine)



BONANZA A35 (FUNCTIONAL AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine - fitted with Continental Motors E-185 (Piston engine) E



THORP T-211 (LIVE AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine - fitted with Continental0-200 engine (Piston engine)



THORP T-211 (LIVE AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine – fitted with Continental0-200 engine (Piston engine)



THORP T-211 (LIVE AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine – fitted with Continental O-200 engine (Piston engine



CESSNA172R (LIVE AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine - fitted with Continental O-300 (Piston engine)



CESSNA172R (LIVE AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine - fitted with Continental O-300(Piston engine)



CESSNA172R (LIVE AIRCRAFT)

Sha-Shib Flying Academy (Guna)
Engine - fitted with Continental O-300 (Piston engine)



LEARJET 25B (FUNCTIONAL AIRCRAFT)

Sha-Shib Aerospace Engineering (Gurugram)
Engine- Fitted with General Electric CJ 610-6 (Turbo Fan Engine



CESSNA 150 (FUNCTIONAL AIRCRAFT)

Sha-Shib Aviation Academy (Cochin)
Engine - fitted with CONTINENTAL O-200-A (Piston Engine)



LEARJET 25B (FUNCTIONAL AIRCRAFT)

Sha-Shib Aviation Academy (Cochin)
Engine – fitted with CJ610-6 (Turbo Jet Engine



AJEET (FUNCTIONAL AIRCRAFT)

Hindustan Aerospace Engineering MRO (Pune)
Engine –"Orpheus" 701-01 turbojet engine of 4,500 lb thrust output

Apart from these aircraft, Sha-Shib Group provides Aircraft System Description training of latest technology aircraft like Airbus, Boeing etc.