Comprehensive Guide to **Aircraft Maintenance Engineering**

Maintaining Safety In **Aviation**

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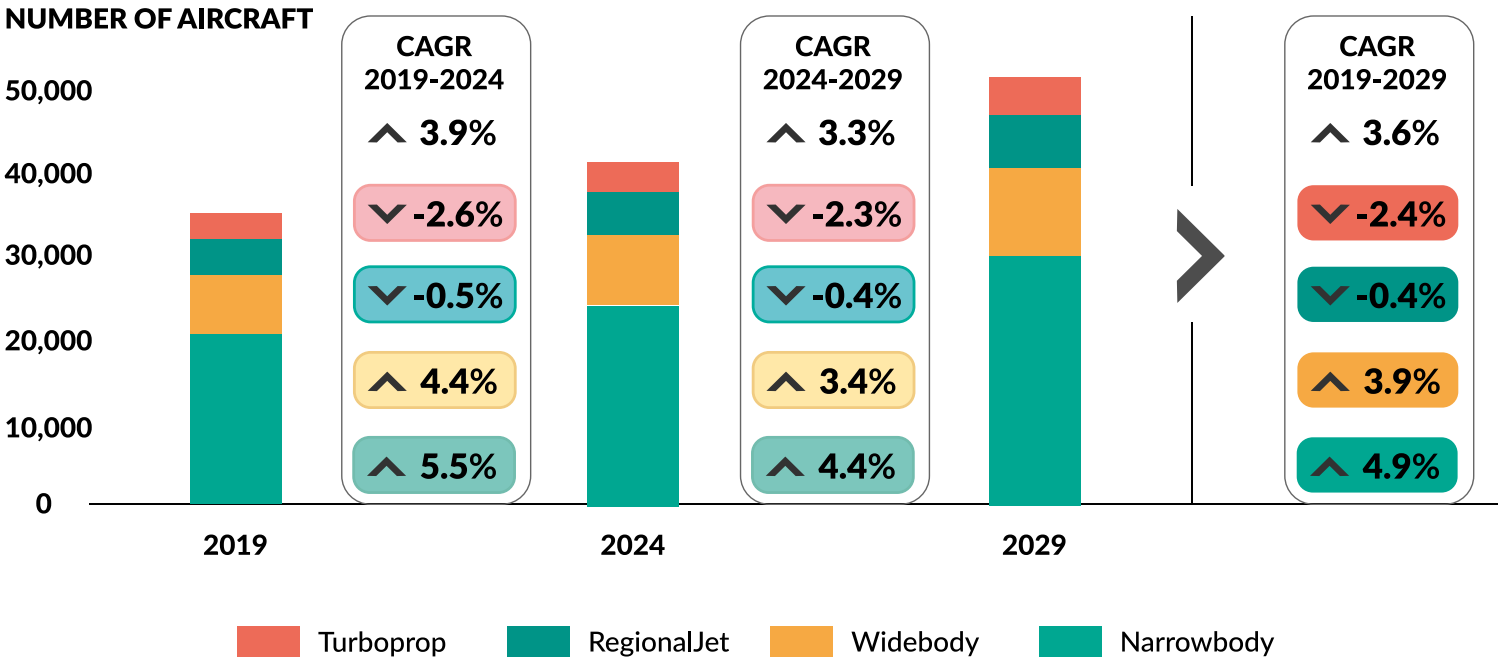
Aircraft Maintenance Engineering In A Nutshell

Aircraft maintenance engineering involves hands-on or skilled work in inspecting, repairing, modifying, replacing and restoring engines and equipment on aircraft to ensure it remains in optimal condition for flying. This involves aircraft such as planes and helicopters that undergo routine maintenance after completing a set number of flights.

The tasks involved in aircraft maintenance include replacing worn or damaged components, running tests to detect engine malfunction and inspecting engine parts that need repair. A thorough inspection of the plane and a stable engine system are among the factors that determine the airworthiness of an aircraft.

Facts and Figures

As the aviation industry continues to expand due to increase in global travel, maintenance and repair services also increase in demand.



According to a report by Oliver Wyman Global Fleet and MRO Market Forecast, the total MRO expenditure is expected to rise to US$116 billion by 2029.

https://www.oliverwyman.com/our-expertise/insights/2019/

Facts and **Figures**

- The opportunity to become a skilled and seasoned aircraft maintenance engineer is plenty, especially for individuals who are interested in putting in the hours, studying for higher levels of certification and expanding their expertise.
- After working as an aircraft maintenance engineering professional for several years, individuals can explore other work opportunities with owners of private or corporate fleets.
- Knowledge of composite materials and digital systems will add to an individual's credentials and increase opportunities for employment.
- Today, aircraft maintenance is a highly respected profession. As many lives are at stake with each departure, it is a demanding role that requires much precision, attention to detail, and accuracy at every step of the maintenance process.

Career **Prospects**

After completing your aircraft maintenance engineering course and gaining the required years of on-the-job training and logging the required hours, your job title may include:

- Aircraft Maintenance Technician
- Aircraft Maintenance Engineer (Mechanical)
- Aircraft Maintenance Engineer (Avionics)
- Aero Components Repair Technician
- Quality Assurance Engineer
- Airworthiness Inspector
- Technical Services Engineer

Professional Aircraft **Maintenance Qualification**

Engineers need to be officially licensed in order to conduct maintenance work on an aircraft.

Civil Aviation **Authority**

The European Aviation Safety Agency (EASA) is the core agency of a new, cost-efficient regulatory system in Europe, which stringently ensures all its partner agencies worldwide are similarly well-organised. EASA is responsible for the airworthiness standards for the majority of civil aircrafts registered in European Union member states.

The **Civil Aviation Authority of Malaysia (CAAM**) is responsible for issuing professional aircraft maintenance licenses and ensuring the license type fits the category of maintenance work.

Source: www.easa.eu

Aircraft Maintenance Industry in Malaysia

The aircraft maintenance industry in Malaysia falls under the Maintenance, Repair and Overhaul (MRO) segment. The sector recorded over RM14 billion in revenue in recent years, with roughly half of it contributed by the MRO segment, according to themalaysiareserve.com.

The popularity of travel, coupled with an expansion of low-cost carrier businesses has brought about a sudden demand for MRO services. As the country's fleet expands and local airlines increase their number of flights per day, the industry is expected to aggregate revenues exceeding RM16 billion in 2020.

Source: themalaysiareserve.com

The Future of **Aircraft Maintenance**

It is forecasted that by 2031, Asia-Pacific will be the biggest airline market in the world, receiving nearly a third of all new aircraft deliveries, and with that the jobs available will also increase. Technology will continue to play a role in this arena with increased efficiency. Here are some ways technology will play an important role in aircraft maintenance engineering.

You can look forward to these new technology being introduced for a faster working experience:

01 Augmented Reality (AR) and Virtual Reality (VR)

The presentation of augmented reality (AR) and virtual reality (VR) in wearable glasses have proven to cut down production time by 25% for engineers.

02 Smart Integration Tools

Wi-Fi-enabled AR Smart glasses is a smart tool that can be used to tighten a bolt to perfection, reducing mistakes amongst engineers and saving both precious time and money.

03 Increased Productivity

The use of new technology in this field could effectively and efficiently increase productivity. The smart tool can complete a task within 3 minutes, compared to the traditional method, which takes 45 minutes.

Know Your **Roles**

01 Aircraft Maintenance Technician

An Aircraft Maintenance Technician ensures an aircraft is in optimal condition by performing routine maintenance and repairs. They identify any problems on an aircraft's structure, mechanical and hydraulic system and subsequently conduct the necessary repairs.

02 Aircraft Maintenance Engineer (Mechanical)

An Aircraft Maintenance Engineer conducts an inspection, restoration, and overhauling of aircraft. They are responsible for the engine and airframe, and conduct thorough checks and work on modifications to repair the aircraft.

03 Aircraft Maintenance Engineer (Avionics)

An Aircraft Avionics Engineer works on the radio instruments, flight control, navigation and communication system. They are responsible for ensuring all the electrical and electronics equipment are in working order in the aircraft.

04 Airworthiness Inspector

An Airworthiness Inspector's job includes evaluating the mechanics and repair facilities to see if it fits the safety standards set by the Federal Aviation Administration (FAA). They also inspect an aircraft and its systems for airworthiness and evaluates the maintenance equipment, procedures, and overall maintenance records.

05 Technical Service Engineer

A Technical Service Engineer is responsible for the installation and configuration of computer systems and identifying the technical problems of a software or hardware in an aircraft.

Aircraft Maintenance Is An Option If..

01 You Enjoy Engineering Activities

Whether it involves repairing, building, designing or maintaining a structure or object, it's something you enjoy doing, Especially when it comes to repairing objects, your feel a sense of accomplishment when you successfully put it back to working order again.

02 You Have A Keen Attention To Detail

In this line of work, engineers need to be detail-oriented to identify and fix the small component in an aircraft. They also have to keep track of the tools and inventory that are required to repair and replace faulty parts. Engineers have to document all inspections and ensure they are done according to the procedure, leaving no room for error.

03 You Prefer Hands-On Work

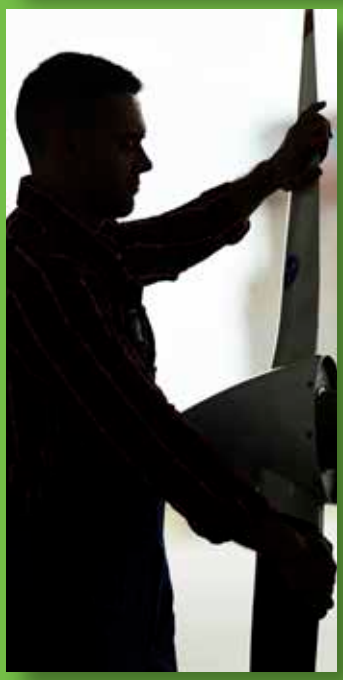
Do you prefer learning and working with your hands rather than studying through a textbook? You don't mind getting your hands dirty to get to the bottom of the technical issue. If this sounds like you, then you might be a perfect fit for a career in Aircraft Maintenance. Aircraft maintenance engineers usually require technical skills and good hand-eye coordination to perform the most meticulous tasks.

What's In An Aircraft Maintenance Engineering Course?

The topics that you would likely come across while Studying for a Diploma in Aircraft Maintenance Engineering includes:

- Digital Techniques
- Basic Aerodynamics
- Human Factor
- Instrument and Avionics System
- Aeroplane Aerodynamics Structures and Systems
- Gas Turbine Engine
- Propeller






Nilai University offers Aircraft Maintenance Engineering programmes that set students on a promising pathway towards a rewarding career in Aircraft Maintenance Engineering and other related prospects.

Find out more:
http://apply.nilai.edu.my/aircraft-maintenance/

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Nilai University DU032(N) **No 1, Persiaran Universiti, Putra Nilai, Bandar Baru Nilai, 71800 Nilai, Negeri Sembilan, Malaysia.**

Tel: +606-850 2308 | Email: marketing@nilai.edu.my

Nilai Education Sdn Bhd
Registration No: 199401021536 (307215-P)

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