

Aerospace Subsector

CAREER GUIDE

volume 9



Transport Education Training Authority



Transport SETA





Transport Education Training Authority

Driven by Vision

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AEROSPACE SUBSECTOR

SUBSECTOR OVERVIEW

The Aerospace subsector encompasses:

- Transportation of passengers or goods in the air.
- Use of equipment such as aircraft, helicopters and space vehicles such rockets, spaceships and drones.
- Involves the provision and management of airport, heliports and air space services.
- Involves other support services such as the manufacture, maintenance and repair of air transport related equipment.
- The biggest employer companies are

state-owned enterprises such as South African Airways (SAA) with its subsidiaries (SAA Technical, SA Air link, SA Express), South African Air-force and Denel.

Major government entities in this subsector are:

- South African Civil Aviation Authority (SACAA)
- Air Traffic and Navigation Services (ATNS)
- Airports Company of South Africa (ACSA)
- South African Air Force (SAAF)
- South African Police Service Air Wing
- South African Weather Services (SAWS)



Occupations in the Aerospace Subsector

AERONAUTICAL ENGINEER

Occupational Code: 214403

Brief Job Description

- Responsible for the design, development, modification and maintenance of the components and systems of all types of flight vehicles (aircraft, helicopters, missiles and so on)
- Must be technical savvy

Entry Requirements

- Grade 12 with Mathematics, Science and English
- Degree in Aeronautical Engineering

Required Qualities for Success

- Strong mathematical, analytical and problem-solving skills
- Technical expertise
- Creativity and innovative thinking
- Attention to detail

Factors to Consider

- Requires strict adherence to safety regulations
- May face high pressure environments and tight deadlines
- Requires a commitment to keeping up to date with technical developments

AIRCRAFT TECHNICIAN

Brief Job Description

- Repair and perform scheduled maintenance on aircraft
- There are different areas of specialisation as listed below

Areas you can specialise in

- Aircraft assembler - develops, designs all aircraft/air vehicles
- Aircraft electrician - maintains, inspects, repairs, overhaul and test aircraft electrical components.
- Aircraft electroplater (712201) - works with electrochemical processes to plate aircraft parts for reconstruction or to prevent corrosion..
- Aircraft instrument mechanic (672101) - installs, repairs and tests navigation and flying equipment
- Aircraft mechanic (653201) - responsible for the maintenance of aircraft components like engine, fuel systems, hydraulic and pneumatic components, landing gears, brakes, pumps, and many more.
- Aircraft painter (643202) - responsible for the protective and decorative finishing of the aircraft body, its engine and components.
- Aircraft radartrician (672104) -maintains all communication equipment of the aircraft

- Aircraft structures (653202) - responsible for the manufacture, maintenance, repair and modification of air craft structures and components
- Aircraft trimmer (653202) - responsible for the manufacture, maintenance, repair and modification of interior components like survival equipment, seat covers, fabric panels, insulation, carpets and curtains.
- Aircraft welder (651202) - repairs aircraft components by welding processes and using advanced technologies.
- Aviation turner and machinist (652301) - modification, repairs and manufacture of air craft parts.
- Composite structures (653202) - manufacture, maintenance and repair plastic, fibreglass and honeycomb structure components.
- Electro-mechanic (672106) - maintains teletype equipment, landing lights, beacons, and stand-by generators.
- Electronic maintenance (672106) - maintains navigation aids and communication equipment like radar and radio beacons.
- Fitter and turner (652302) - manufactures parts and aircraft components.
- Flight-line mechanic - prepares an airplane for a test flight after final assembly.

Entry Requirements

- Grade 12 with Mathematics, Science and English
- TVET Technical aviation courses
- Artisan Qualification

Required Qualities for Success

- Attention to details
- Good communication skills
- Technical expertise within the area of specialisation

Factors to Consider

- The environment can be loud because of aircraft engines and equipment
- May work under high pressure environments with tight deadlines
- Requires commitment to keeping up to date with technical developments

AIRCRAFT MAINTENANCE ENGINEER

Other name variations: Aircraft Maintenance Mechanic, Aircraft Electrician, Aircraft Instruments Mechanic, Aircraft Radiotrician, Aircraft Structures and Aircraft Welder

Brief Job Description

- Ensures the safety of the airline's fleet
- Responsible for managing the maintenance programme of an aerospace vehicle

Entry Requirements

- Grade 12 with exceptional pass in Maths and Science
- Industry certification
- Understanding of transport and logistics environment is crucial

Required Qualities for Success

- Attention to detail

- Like working with your hands
- Technical mind-set
- Passionate about Maths and Science

Factors to Consider

- Meeting maintenance deadlines can create a high-pressure environment
- Proper supply chain management of the required parts should be in place to avoid delays
- The occupation can be dirty

- Able to handle stressful conditions
- Knowledge at your fingertips of the airline's regulation regarding boarding specifications like disabled people, luggage, kids and other related issues

Factors to Consider

- You need thorough knowledge of the airport to direct customers properly
- A calm approach is required at all times
- Requires you to look presentable at all times

AIRPORT CUSTOMER RELATIONS AGENT

Other name variations: Customer Service Agent

Occupational Code: 422203, 422102.

Brief Job Description

- They are the face of the airline
- Help customers with bookings and checkins at airports

Areas you can specialise in:

- Customer Service Agents
- Corporate Reservation Agents
- Ticket Agents
- Check in Desk Agent
- Contact Centre Agents

Entry Requirements

- Grade 12 with English
- Qualification in travel and tourism
- Customer relations training is essential

Required Qualities for Success

- Good communication skills
- Passion for working with people

AIRPORT MANAGER

Other name variations: Airline Station Manager

Occupational Code: 132407

Brief Job Description

- Manage all the work taking place in an airport (from control tower, safety, security, public and tenants)
- Collaborate with different airline service providers
- Ensure that all the aviation rules and regulations are implemented regarding safety and security

Areas you can specialise in

- Work closely with the management team
- Work at the airport as Station Manager Entry

Requirements

- Grade 12 with Mathematics, Science and Commercial subjects
- Bachelor's degree in Business

Administration and Marketing

- A degree in aviation is also helpful
- An MBA is an added advantage

Required Qualities for Success

- Leadership skills
- Ability to handle stress and work under pressure
- Ability to multitask
- Must be a team player

Factors to Consider

- Ability to remain calm in challenging situations
- Ability to handle difficult situations

AIRPORT PLANNER

Occupational Code: 216

Brief Job Description

- Assess passenger enquiries
- Develop layouts for airport facilities

Entry Requirements

- Grade 12
- Degree in either Environmental studies, Architecture or Civil Engineering
- Previous experience in aviation will be an added advantage

Required Qualities for Success

- Analytics and communication skills
- Project management and people management
- Good data gathering skills
- Knowledge of environmental planning

and preservation concepts

Factors to consider

- Effecting change maybe difficult
- No room for error due to large investments involved

AIRPORT SAFETY OFFICER

Other name variations: Aviation Safety Specialist; Airport Safety Manager

Brief Job Description

- Ensure that the airport is safe to public and airline operators
- Manages all emergency services requirements and personnel at an airport
- Handles emergency landing and evacuation of public when there is a terrorist threat
- Aviation incident inspector
- A safety officer derives satisfaction in keeping the members of public and airport operations free from accidents or any emergencies

Entry Requirements

- Grade 12 with Geography, English and Life Science
- Diploma in Safety and Security
- First aid and Firefighting qualifications
- Degree with environmental studies, safety and security in aviation related management

Required Qualities for Success

- Knowledge of safety and security regulations for airports

- Attention to details
- Proactive – ensure accidents are prevented at all time
- Work independently and take quick decisions

AIR TRAFFIC NAVIGATION OFFICER

Other name variations: Navigator, Air Traffic Controller, Air Traffic Service Operator

Occupational Code: 315301, 3154, 315401

Brief Job Description

- Responsible for keeping the skies safe
- Communicate with the flight crew
- Plot aircraft course
- Report position and estimate arrival time
- Direct planes to prevent collision

Entry Requirements

- Grade 12 certificate with Mathematics, Geography, Science and English
- Training should have been done through the Air Traffic Navigation Services (ATNS)

Required Qualities for Success

- Good communication skills
- A team player
- Be a quick thinker

Factors to Consider

- High pressure environment and Requires quick decisions if things change quickly, and they always do
- Expect to work long hours
- Lives of passengers and flight crew are dependent on your correct instructions

AVIATION LAWYER

Other name variations: Attorney

Occupational Code: 261101

Brief Job Description

- Specialised legal field of civil aviation
- Previous experience Areas you can specialise in
- General aviation operations
- Aircraft purchases, leasing and finance
- Accident/incident litigation
- Civil aviation regulatory compliance
- Commercial agreement

Entry Requirements

- Grade 12 with Mathematics, Science, and English.
- Law Degree with Aviation specialisation
- Additional prior expertise in the field of practice will be an added advantage

Required Qualities for Success

- Ability to draw reasonable and logical conclusive judgment
- Good communicator and people skills
- Good research, investigative and analytical skills
- Be creative and adaptable

Factors to Consider

- Requires perseverance
- Must be technical savvy

AVIATION MEDICINE

Other name variations: Specialist Medical Practitioners

Occupational Code: 2212

Brief Job Description

- Attends to the health and safety of the flight crew and passengers
- Carry out medical examinations for airline personnel

Entry Requirements

- Grade 12 with Mathematics, Science and English
- Medical Training

Required Qualities for Success

- Good communication and people skills
- Attention to details
- Quick thinking and decision making

CABIN CREW

Other name variations: (Flight Attendant, Cabin Attendant)

Occupational Code: 511101

Brief Job Description

- Attend passengers' enquiries
- Requires lot of travel
- Ensures passengers' safety and comfort during a flight
- Gives instructions on safety rules and ensures that the same safety rules are adhered to on airplane
- Serves food during flight

Areas you can specialise in

- Commercial Airlines
- Chartered planes
- Ground Hostess
- Flight Purser
- Air Hostess
- Crew Attendant
- Airport Attendants

Entry Requirements

- Must have Grade 12
- Travel and tourism qualification
- Cabin Crew course
- Pass the English Language Proficiency Test
- Must be medically fit
- With a minimum height of 1.58m
- Be a competent swimmer
- A clear criminal, credit and qualification checks

Required Qualities for Success

- You must have good interpersonal skills (outgoing and good conflict management skills)
- Culturally sensitive
- You must have the ability to work under pressure
- Must be a team player

CARGO MANAGER

Other name variations: Loadmaster

Brief Job Description

- Managing the loading and offloading of

air cargo

- Planning the cargo routes and movement
- Balancing aircraft loading bays for safety
- Supervising, loading crews and procedures

Areas you can specialise in

- Commercial airlines
- Military

Entry requirements

- Grade 12 with Mathematics, Physics
- Diploma or Degree in Cargo Management or Logistics

Required Qualities for Success

- Ability to multitask
- Quick thinking under pressure
- Problem solver
- Team player

EMERGENCY SERVICE CREW

Occupational Code: 541101

Brief Job Description

- Handle all airport and aircraft emergencies

Entry Requirements

- Grade 12
- Public safety training
- Firefighting training
- Paramedic training

Required Qualities for Success

- Good communication skills

- Physical fitness
- Team player
- Technical skills

FLIGHT DISPATCHER

Other name variations: Airline Dispatcher, Flight Operations Officer

Brief Job Description

- Ensure that a safety and efficient flight dispatch environment is present
- Authorise take-offs and cancel flights
- Assist in planning flight paths
- Advise pilots in the air on weather or route changes

Entry Requirements

- Grade 12 certificate with Geography, Mathematics and Physical Science
- Computer literacy
- Diploma Flight Dispatch

Required Qualities for Success

- Good communication skills
- Attention to detail
- Ability to work under pressure

FLIGHT ENGINEER

Brief Job Description

- Crew member of the aircraft
- Ensure that all components of the aircraft are in proper working order before

takeoff

- Monitors all complex computer systems and check any threats
- Submit reports (flight logs) for problems that would have occurred while flying

Entry Requirements

- Grade 12 with Mathematics, Science and English
- B degree in Engineering
- Background of flying an aircraft and understanding of aircraft instrumentation

Required Qualities for Success

- Good communication skills
- High attention to details
- Ability to work under pressure
- Team player

FLYING INSTRUCTOR

Occupational Code: 315304

Brief Job Description

- Teaches others to fly

Areas you can specialise in

- Aeronautical Instructor
- Aviation Instructor
- Gliding Pilot Instructor
- Ground School Instructor
- Helicopter Pilot Instructor

Entry Requirements

- Grade 12 certificate with Mathematics, Physical Science or Computer Science
- Private Pilot License (PPL) with a night

rating

- 100 hours of solo flying
- Commercial Pilot License (CPL)
- 200 hours of flying experience

Required Qualities for Success

- Good communication skills
- Attention to detail
- Leadership skills
- Mentoring and coaching skills

FLYING SIMULATOR INSTRUCTOR

Occupational Code: 3153

Brief Job Description

- Training of pilots

Entry Requirements

- Grade 12 certificate with Mathematics, Physical Science or Computer Science
- Valid South African Air Transport Pilot's Licence
- At least 1, 500 flying hours which includes a minimum of 200 hours on multi-engine aircraft
- Flying instructor certificate

Required Qualities for Success

- Good communication skills
- Attention to detail
- Good leadership, mentoring and coaching skills
- Technical skills

GROUND HANDLING CREW

Other name variations: Ground Operations Crew

Occupational Code: 833304

Brief Job Description

- Provide support service to an aircraft when it is on the ground
- Operate ground service equipment and vehicles

Areas you can specialise in

- Guide aircraft to and from parking lots
- Refuelling of air craft
- Runway debris clearing
- Luggage handling
- Clean of aircraft
- Safety for boarding and disembarking passengers

Entry Requirements

- Grade 12
- Airline experience
- Ability to use radio equipment
- Ability to operate various airport ground operations equipment

Required Qualities for Success

- Good communication skills
- Physical fitness
- Team player

HELICOPTER PILOT

Other name variations: Rotary Wing pilot

Occupational Code: 315305

Brief Job Description

- Flies helicopters for various purposes

Areas you can specialise in

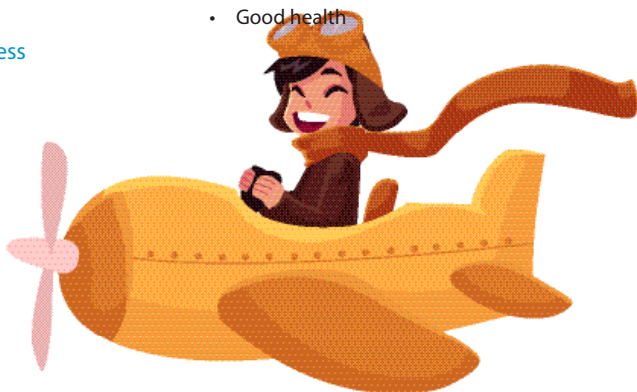
- Emergency services
- Fire fighting
- Executive transport
- Military
- Police
- Agriculture
- Recreational

Entry Requirements

- Grade 12 with Mathematics, Science and Geography
- Pilot licence
- Previous flying experience

Required Qualities for Success

- Good communication skills
- Good motor skills
- Good precision
- Good health



METEOROLOGIST-AVIATION

Occupational Code: 211201

Brief Job Description

- Analysing weather data and
- Give report to pilots and flight dispatchers to prepare flights

Entry Requirements

- Grade 12 with Mathematics, Physical Science, Life Sciences and Geography
- BSc degree

Required Qualities for Success

- A good researcher
- Sound knowledge of data processing techniques
- Good analytical skills
- Good judgement

PILOT (FIXED WING)

Other name variations: (Commercial pilot, Airline pilot, private jets pilot)

Occupational Code: 315303

Brief Job Description

- This occupation involves the flying of aeroplanes for remuneration either privately or for airline companies

Areas you can specialise in

- Passenger Airline
- Cargo (Air freight)
- Private
- Military Transport Pilot

- Jet Fighter Pilot

Entry Requirements

- Minimum age of 18 years
- Grade 12 with Mathematics, Physical Science
- Bcom in Computer Science
- Valid South African Air Transport Pilot's License (frozen ATPL) with multi engine instrument rating
- Valid class 1 medical
- At least 1, 500 flying hours which includes a minimum of 200 hours on multi-engine aircraft

Institutions Offering Qualifications

- South African Air force
- Commercial Airlines training divisions
- Private



BUSINESS SUPPORT

All organisations within the aerospace subsector require support service. Within the support services you will find careers in IT, marketing, sales, finance, HR, legal services,

research and development. These careers are adapted to the aerospace subsector to support operations.

HARD TO FILL VACANCIES IN THE AEROSPACE SUBSECTOR

- Aeronautical Engineer
- Aeronautical Engineering Technician
- Aircraft Maintenance Mechanic
- Aircraft Structures Worker
- Aircraft Pilot
- Air Traffic Controller
- Avionics Mechanic
- Meteorologist
- Telecommunications Engineer
- Training and Development Professional



Summary of a Typical Aerospace Organisation

| | | | | |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------|-----|
| Owners: Shareholders | | | | |
| Board Of Directors | | | | |
| Executive Management | CEO COO CFO Company Secretary Business Development | | | |
| Senior Management | General Managers Senior Managers | | | |
| Main Departments | Cargo | Passengers | Food Division | MRO |
| Operations | Airport Managers Safety Managers Managers Supervisors Air Traffic Controllers Meteorologists Pilots Cabin Crew Ground Crew | | | |
| Technical/ Maintenance | Engineers Technicians Flying Simulator Instructors | | | |
| Support and Administration | HR Management & Development | | | |
| | Finance | | | |
| | Legal, Risk & Compliance | | | |
| | Information Technologies | | | |
| | Contact Centres & Sales | | | |

AEROSPACE SUBSECTOR CONTACTS

| | |
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| South African Civil Aviation Authority (SACAA) | www.caa.co.za |
| Airports Company South Africa (ACSA) | www.airports.co.za |
| South African Airways (SAA) | www.flysaa.com |
| Air Traffic & Navigation Services (ATNS) | www.atns.co.za |
| South African Air Force (SAAF) | www.saairforce.co.za |





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