

**CURRICULUM
ADVANCED COURSE IN AVIATION MEDICINE
AEROMEDICAL INSTITUTE
PAKISTAN AIRFORCE**

This one year course is designed to impart intensive and all-embracing training for medical graduates in the discipline of Aviation Medicine. It encompasses a comprehensive exposure of the trainees to the theoretical, clinical and operational aspects of Aviation Medicine through class room activities, orientation visits to related civil and military departments and extensive On Job Training (OJT). The course is appropriate for medical officers and for clinicians from other disciplines who aspire to fulfill a role in Aviation Medicine.

Course details

The Aviation Medicine course is a unique study pathway that provides medical officers with comprehensive theoretical and practical instructions in advanced Aviation Physiology, Psychology, Pathology, Clinical and Operational Aviation Medicine.

This course spans over 52 weeks and is divided into two semesters of 26 weeks each. Each semester is further divided into two modules as under:

Semester	Module	Duration	Setup	Mode of Trg	Cr Hrs
1	1 (a)	12 weeks	Aeromedical Institute	Basic academics	10
	1 (b)	14 weeks	Flying Wings/PAF Hospitals	Basic and advanced theoretical and applied aspects	
2	2 (a)	21 weeks	Flying Squadrons	On Job Training (OJT)	10
	2 (b)	5 weeks	Aeromedical Institute	Final assessment	
Total credit hours					20

Semester wise break down:

Semester 1

Module 1 (a) Basic academics

Duration : 12 weeks

Contacts : Academics Aviation Physiology, Operational Physiology, Aviation Pathology, Clinical Aviation Medicine, Aviation Psychiatry, Psychology, Communication skills

Visits

- PIA Training Centre
- PIA Medical Centre
- CAA Medical Centre
- Various naval setups for water escape, dunker drill and submarine exposure
- Armed Forces "A" class Hospital
- Dow University of Medical Sciences
- PAF Engineering units
- PAF Medical setups
- Flight Lines
- Egress Section

Practical experience

- Gyrolab/VID sessions
- Hypobaric Chamber activity
- Ejection Seat Simulator
- Dunker drill training
- Sea Survival
- ATLS/ACLS (Dow University of Medical Sciences)
- Hyperbaric Chamber activity

Evaluation

- Pre-course assessment
- Theory papers
- Viva voce examinations
- Syndicate presentations
- Surprise Quiz tests
- Discipline, Attitude and Behaviour

Module 1(b)

Duration 14 weeks

This module enables the trainees to consolidate their theoretical knowledge by applying it in the real time environment. During this module the trainee flight surgeons learn to implement Standard Operating Procedures (SOPs). They also learn to apply their theoretical knowledge into the practicalities, arising out of emergent situation.

Breakdown:

- (a) Aero Medical Evacuation procedures (Search and Rescue Sqn).
- (b) Hoisting / winching missions (Search and Rescue Sqn).
- (c) Rotary flying experience (Search and Rescue Sqn).

- (d) Life Saving Equipment orientation (LSE Shop) .
- (e) Ejection Seat analysis, G suit operation (Eng Wing).
- (f) Attending morning brief for aircrew motivation and encouragement.
- (g) Regular visits of crew room for the assessment of aircrew morale.
- (h) Visit of flight lines for the conduct of sick report.
- (j) Regular sick parade of pilots/ground crew at Flight Surgeon's Inspection Room.
- (k) Medical cover for all flying operations.
- (l) DMO duty at hospital/medical squadron on rotation.
- (m) Visit of Tarmac/ADA/ATC tower/Mobile/Met Sqn/Flight safety Sqn.
- (n) In case of crash, he/she will be the part of aeromedical evacuation team.
- (o) Delivery of lectures on following aviation medicine topics in flying wing and squadron on weekly basis:
 - (i) Aircrew nutrition
 - (ii) Physical fitness
 - (iii) Hypoxia
 - (iv) G LOC
 - (v) Spatial disorientation
 - (vi) Night vision and flying
 - (vii) Self medication

Online examination: At the end of first semester the trainees are assessed for their theoretical knowledge and practical skills.

Semester 2

Module 2(a) On Job Training (OJT)

Duration 21 weeks

The OJT is conducted at various flying squadrons/flight line setups. All the trainee flight surgeons are also given group research projects. Each group comprises of minimum 2 and maximum 5 students.

Break down

- (a) Aircraft Accident Investigation (At various PAF setups).
- (b) Rotation on different weapon system (At various PAF Bases).
- (c) Anthropometry, medical categories/standards (Hospital/Med Sqn)
- (d) Examination/boards/disposals (Combined Medical Board PAF Lahore).
- (e) Fighter A/C flying experience (Flying Wing).
- (f) Advanced G straining maneuvers (Flying Wing).
- (g) Night flying experience (Flying Wing).
- (h) Work on group research project assigned by AMI.
- (j) Regular visit of crew room for in depth assessment of aircrew medical and psychological issues.

- (k) Visit of flight lines for the conduct of sick report.
- (l) Regular sick parade of pilots/ground crew at Flight Surgeon's Inspection Room.
- (m) Medical cover for all flying operations.
- (n) DMO duty at hospital/Medical Squadron on rotation basis.
- (o) Visit of Tarmac/ADA/ATC tower/Mobile/Met Sqn/Flight safety Sqn.
- (p) Advanced combat search and rescue drills (Search and Rescue Sqn).
- (q) Case studies on surveillance cases of flying squadrons.
- (r) Topics covered through lectures/discussions in flying wing/ squadron/ crew room are:
 - (i) Importance of AGSM in combat missions
 - (ii) Emergency Ejection injuries
 - (iii) Space Physiology
 - (iv) Human factor in aircraft accidents
 - (v) Fatigue and its solution
 - (vi) Stress and its counter measures
 - (vii) Fasting and flying
 - (viii) Physiological limitations of night flying
 - (ix) Smoking and flying
 - (x) Alcohol inducing illusions and hypoxia
 - (xi) Atmosphere and its physiological variations at bases
 - (xii) Effects of sleeplessness and overwork on flight operations
 - (xiii) Crew Resource Management (CRM)
 - (xiv) Common infectious diseases
 - (xv) Communicable/non communicable diseases among aircrew members
 - (xvi) Pharmacotherapeutic aspects of Space Medicine
 - (xvii) Acute responses to microgravity
 - (xviii) Challenges of radiation exposure in aviation

Module 2 (b)

Duration 5 weeks

This is the final phase of the course comprising of:

- (a) Theory paper (100 MCQs, 200 Marks)
- (b) Viva voce (6 stations, 200 Marks)
- (c) Project research topic presentations (100 Marks)
- (d) Practical assessment on Aeromedical Simulators (100 Marks)
- (e) Defence of thesis (100 Marks)
- (f) Assessment of progress reports/conduct at flying bases by the concerned Senior flight surgeon, Squadron Commander and Base Commander (100 Marks)
- (g) Assessment of overall discipline, attitude and behavior of trainees (200 Marks)

Overall supervisor OC AMI

Progress supervisor CI AMI in coordination with concerned OC hospital/Senior Medical Officer, Senior flight surgeon and OC flying squadron.

Examination body

External Examiners

- (a) Medical Directorate
- (b) Flight Safety Squadron
- (c) Senior Flight Surgeon of the Base
- (d) Specialists from hospital

Internal Examiners

- (a) OC AMI
- (b) CI AMI
- (c) Instructor flight surgeons