

	TANZANIA CIVIL AVIATION AUTHORITY DIRECTORATE OF SAFETY REGULATIONS PERSONNEL LICENSING	Revision:0 Advisory circular
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INSTRUMENT RATING(IR)– AEROPLANES WITH PERFORMANCE-BASED NAVIGATION (PBN) ELEMENTS TRAINING SYLLABUS:

Instrument Rating (IR)

Instrument Rating (IR) is an additional qualification for pilots that allows them to fly aircraft in a variety of weather conditions, including those with low visibility or other conditions where visual flight is not possible. This rating is essential for pilots who wish to operate in controlled airspace or fly under Instrument Flight Rules (IFR). It involves extensive training and testing to ensure that pilots are competent in flying with instruments, navigating using flight plans, and managing aircraft systems under challenging conditions.

Performance-Based Navigation (PBN)

Performance-Based Navigation (PBN) is a set of requirements defined by the International Civil Aviation Organization (ICAO) to ensure safe and efficient navigation, which relies on aircraft's onboard navigation systems rather than traditional ground-based navigation aids. PBN utilizes a variety of navigational technologies and performance standards, such as Area Navigation (RNAV) and Required Navigation Performance (RNP), to enable precise and flexible routing, particularly in airspace where conventional navigation aids are not available. The integration of PBN into Instrument Rating (IR) training is necessary to ensure that pilots are capable of conducting operations safely and efficiently in airspace that requires this technology.

Decision height/altitudes, minimum descent heights/altitudes and missed approach point shall be determined by the applicant and agreed by the examiner.


Section 1 — Pre-Flight Operations and Departure Use of checklist, airmanship, anti-icing/de-icing procedures, etc., apply in all sections	
a.	Use of flight manual (or equivalent) especially a/c performance calculation, mass and balance
b.	Use of Air Traffic Services document, weather document
c.	Preparation of ATC flight plan, IFR flight plan/log

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d.	Identification of the required nav aids for departure, arrival and approach procedures
e.	Pre-flight inspection
f.	Weather Minima
g.	Taxiing
h.	PBN departure (if applicable): — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the departure chart.
i.	Pre-take-off briefing, Take-off
j(°)	Transition to instrument flight
k(°)	Instrument departure procedures, including PBN departures, and altimeter setting
l(°)	ATC liaison — compliance, R/T procedures
Section 2 — General Handling (°)	
a.	Control of the aeroplane by reference solely to instruments, including: level flight at various speeds, trim
b.	Climbing and descending turns with sustained Rate 1 turn
c.	Recoveries from unusual attitudes, including sustained 45° bank turns and steep descending turns
d. (*)	Recovery from approach to stall in level flight, climbing/ descending turns and in landing configuration — only applicable to aeroplanes
e.	Limited panel: stabilised climb or descent, level turns at Rate 1 onto given headings, recovery from unusual attitudes — only applicable to aeroplanes
Section 3 — En-Route IFR Procedures (°)	
a.	Tracking, including interception, e.g. NDB, VOR, or track between waypoints
b.	Use of navigation system and radio aids
c.	Level flight, control of heading, altitude and airspeed, power setting, trim technique
d.	Altimeter settings
e.	Timing and revision of ETAs (en-route hold, if required)
f.	Monitoring of flight progress, flight log, fuel usage, systems' management
g.	Ice protection procedures, simulated if necessary
h.	ATC liaison — compliance, R/T procedures
Section 3a — Arrival Procedures	
a.	Setting and checking of navigational aids, if applicable
b.	Arrival procedures, altimeter checks

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c.	Altitude and speed constraints, if applicable
d.	PBN arrival (if applicable): — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the arrival chart.
a.	Setting and checking of navigational aids Check Vertical Path angle For RNP APCH: — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the approach chart.
b.	Approach and landing briefing, including descent/approach/landing checks, including identification of facilities
c(+)	Holding procedure
c.	Compliance with published approach procedure
d.	Approach timing
e.	Altitude, speed heading control (stabilized approach)
g(+)	Go-around action
h(+)	Missed approach procedure/landing
i.	ATC liaison — compliance, R/T procedures
Section 4(°) — 3D Operations (++)	
a.	Setting and checking of navigational aids Check Vertical Path angle For RNP APCH: — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the approach chart.
b.	Approach and landing briefing, including descent/approach/landing checks, including identification of facilities
c.	Holding procedure
d.	Compliance with published approach procedure
e.	Approach timing
f.	Altitude, speed heading control (stabilized approach)
g(+)	Go-around action
h(+)	Missed approach procedure/landing
i	ATC liaison — compliance, R/T procedures
Section 5(°) – 2D Operations (++)	
a.	Setting and checking of navigational

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	aids For RNP APCH: — Check that the correct procedure has been loaded in the navigation system; and — Cross-check between the navigation system display and the approach chart.
b.	Approach and landing briefing, including descent/approach/landing checks, including identification of facilities
c.	Holding procedure
d.	Compliance with published approach procedure
e.	Altitude/Distance to MAPT, speed, heading control (stabilized approach), Step Down Fixes (SDF(s)), if applicable
g(+)	Go-around action
h(+)	Missed approach procedure/landing
i(+)	ATC liaison — compliance, R/T procedures
Section 6 — Flight With One Engine Inoperative (multi- engine aeroplanes only) (°)	
a.	Simulated engine failure after take-off or on go-around
b.	Approach, go-around and procedural missed approach with one engine inoperative
c.	Approach and landing with one engine inoperative
d.	ATC liaison — compliance, R/T procedures
Section 7- THREAT AND ERROR MANAGEMENT (TEM)	
a.	Application of TEM
(°) Must be performed by sole reference to instruments. (*) May be performed in an FFS, FTD 2/3 or FNPT II. (+) May be performed in either Section 5 or Section 6. (+++) To establish or maintain PBN privileges one approach in either Section 4 or Section 5 shall be an RNP APCH. Where an RNP APCH is not practicable, it shall be performed in an appropriately equipped FSTD	



Director Safety Regulation

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