INTERNATIONAL FLIGHT TRAINING SCHOOL

The next level of training excellence for military Pilots

Aeronautica Militare

Powered by LEONARDO
The Italian Air Force’s world-renowned excellence in flight training and Leonardo’s leadership in delivering proven integrated training solutions, come together to create the International Flight Training School (IFTS).

The IFTS is set to become an international benchmark for advanced pilot training, starting with Phase IV (Advanced/Lead-In Fighter Training). Several world Air Forces around the world are increasing their training requirements, especially in the advanced syllabi.

The Italian Air Force (ItAF) brings to the new IFTS its longstanding expertise, while Leonardo brings its proven M-346 advanced jet trainer and Ground Based Training System (GBTS).

The IFTS offers customised teaching modules, according to the syllabus of the incoming Air Force, including its basic training, to best suit the student pilot to the desired exit level, further increasing the download of expensive flight hours from Operation Conversion Unit (OCU), saving time and valuable resources.
**IFTS ADDED VALUE:**

- The **M-346 advanced trainer aircraft**, in service with some of the most demanding Air Forces, including Israel, Singapore, Poland and Italy.
- On-board **Embedded Tactical Training System (ETTS)** for the highest teaching effectiveness.
- A **Ground Based Training System (GBTS)** with full state-of-art training devices, including Full Mission Simulators and Leonardo’s forefront **LVC – Live, Virtual, Constructive – environment** for maximum effectiveness and reduced costs already operational in training Syllabus.
- **International instructor pilots selected by ItAF** (Former military pilots qualified by ItAF as instructor pilots for M-346).
- **Train As You Fight** imprinting to the training programme by ItAF thanks to the large ranging experience acquired in decades of training national and international combat pilots.
- **Stringent pilot qualification process** to achieve the highest levels of training required for use on **4th-5th gen fighter aircraft**.
- **Highly modern dedicated infrastructures to guarantee students top level facilities**.
- Full 24/7 on-site operational support for aircraft and simulators from OEMs.
- Large and diversified training air spaces ideal for every Fighter Training scenario, from sea to mountain environment and in cold/hot temperature conditions.
- **Standardisation according to international recognised models**.
- International context, with unique opportunities for cultural exchanges.
- Competitive cost and effectiveness vs other western schools.

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70+ Trainees per year

22 M-346 AJT

40 Total instructors

15 Air Force

25 Former military (Selected by ItAF)
PREPARING FUTURE AIR WARRIORS AND TOMORROW’S NEXT GENERATION FIGHTER PILOTS WITH A MODULAR APPROACH

Different levels of training devices tailored to meet specific training objectives associated with state-of-the-art LVC capability results in a top notch cost effective training.
THE DOWNLOAD CONCEPT

The M-346 has been specifically designed to improve the teaching effectiveness during the advanced and LIFT phases of training, enabling considerable transfer of flight hours from the Operational Conversion Unit (OCU) to provide the best possible balance between high training effectiveness and low Life-Cycle Cost.
INTEGRATED TRAINING SYSTEM (ITS)

The right solution for the training needs of the Air Forces. The optimal balance of real aircraft and appropriate simulation reduces costs increasing quality.

THEORY

PROCEDURAL DEVICES
SIMULATION BASED TRAINING (SBT)

ELECTRONIC CLASSROOM
COMPUTER AIDED INSTRUCTION (CAI)
COMPUTER BASED TRAINING (CBT)

HANDLING

FLIGHT TRAINING DEVICE
PART TASK TRAINER (PTT)

FULL MISSION SIMULATOR (FMS)

REAL TIME MONITORING STATION (RTMS)

MISSION TRAINING MANAGEMENT

INSTRUCTOR OPERATING STATION (IOS)

MISSION PLANNING AND DEBRIEFING STATION (MPDS)

TRAINING MANAGEMENT INFORMATION SYSTEM (TMIS)
M-346 ADVANCED JET TRAINER

The Leonardo M-346 is a twin-engine, tandem-seat next generation advanced jet trainer, designed to allow student pilots to develop knowledge, skills and practices needed for effective exploitation of modern combat aircraft.

COCKPIT & AVIONICS

• Excellent visibility from both seats
• Latest generation Human-Machine Interface (HMI) with:
  - Six liquid crystal Multi-Function Displays (MFD)
  - Two raster/stroke type Head-Up Displays (HUD)
  - Up-Front Control Panel (UFCP)
  - Digital moving map
  - Hands On Throttle And Stick (HOTAS) controls
  - Integrated Helmet Mounted Display (HMD) system
  - Night Vision Goggles (NVG) fully compatible
  - Voice Command (VC)
  - Get Home Display (GHD), for backup flight data
  - Autonomous navigation based on Embedded GPS/INS Radar-altimeter (EGIR)
  - Radio-aided navigation based on TACAN and VOR/ILS/MB
  - Two independent V/UHF transceivers

EMBEDDED TACTICAL TRAINING SYSTEM

Key feature of the M-346, the comprehensive in-flight ETTS suite enables the aircraft to offer the whole spectrum of simulated training functions in flight and provides both students and instructors with the following on-board simulations:

• A tactical scenario (digital map with threats and targets)
• Presence of realistic Computer Generated Forces (friend and foe)
• On-board sensors (such as multimode Fire Control Radar, targeting pod and active/passive electronic countermeasures)
• Weapons, including specific symbology and delivery parameters
• Live, Virtual, Constructive environment

ETTS functions can support Stand Alone (flying a single-ship mission) or Multi-Ship networked operations, with aircraft and simulators being networked via a dedicated Training Datalink to exchange Tactical Scenario data with other participants.
M-346 AJT Characteristics

SAFETY
• Digital four channel Fly-By-Wire Flight Control System with carefree handling
• Hydraulic and electrical redundancy
• In-Flight safety features:
  - Ground Proximity Warning System (GPWS)
  - Pilot Activated Attitude Recovery System (PARS)
  - Mid-Air Collision Avoidance System (MIDCAS)

CABIN
• Two Martin Baker Mk.IIT16D “zero-zero” ejection seats
• On-Board Oxygen Generator System (OBOGS)
• Environmental Control System (ECS)

ENGINES & FUEL SYSTEM
• The two interchangeable modular dry turbofan engines are equipped with FADEC
• An APU to provide autonomous engine starting
• 2,500 L internal fuel and three external fuel tanks (630 L each)
• Single point pressure refueling system
LIVE, VIRTUAL, CONSTRUCTIVE (LVC)

The advanced integrated LVC system by Leonardo, proven and operational with Italian Air Force, allows student pilots to perform real time joint missions in complex training scenarios, involving:

- Real aircraft with pilots on board (Live)
- Simulators with real pilots at the controls (Virtual)
- Computer Generated Forces (CGF) i.e. virtual entities, such as other aircraft, naval units or ground forces (Constructive)

Furthermore the System has been used linked to front line fighter aircraft simulators as proven during exercise Spartan Alliance 2018.

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True “system of systems”, the LVC exploits the on-board ETTS and the datalink, both able to integrate within a so-called “airborne network” to share all the tactical scenario and data (CGF, weapons etc.) between pilots on real aircraft and simulators. The RTMS manages the joint mission in real time.

LVC scenarios offer a high level of tactical realism and training effectiveness, allowing for the reduction in the number of flight missions required with a major cost savings.
FUTURE DEVELOPMENTS

Expanding IFTS AM - Leonardo collaboration concept to all the phases of flight training (ph 1,2,3) to also include multi-engine and rotary wing platforms.

Implementing Red Air Capability thanks to fighter-like performance of the M-346 platform.
2020-2021 GALATINA (LECCE)

18 + 4 M-346 AJT

+6 Former military instructor pilots

+8 Trainees in 2020
+14 Trainees in 2021
From 2022 DECIMOMANNU (CAGLIARI)
exploiting IFTS capabilities thanks to wide dedicated working area in A/A and A/G scenario associated with dedicated ranges

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40 Total instructor pilots
  (15 Air Force + 25 Former military selected by ItAF)

70+ Trainees per year
“It’s the most modern advanced/lead-in fighter trainer in production, and it’s the only new generation trainer equipped for this role. Its performance and flight qualities are excellent, similar to modern fourth- and fifth-generation fighters. Its design solutions are advanced and provide high levels of safety and limited purchase and operating costs. It is suitable for every phase of advanced training, LIFT and ‘companion trainer’ for combat types, thanks to its ability to simulate a wide range of sensors and armament.”

“The recent introduction of LVC – live, virtual and constructive – training allows missions to be data-linked between simulators and aircraft. The T-346A [as itAF calls the M-346] ‘downloads’ training tasks from the more expensive frontline fighters. Its low maintenance costs and high efficiency make it an economically sound option for advanced training.”

Gen. Luigi Casali, former Head of Training and Standardisation Office, Air Education and Training Command, Italian Air Force
“The synergy between aircraft, instructors and simulation that we have here at Galatina is unique in the world. The ITS allows us to explore new areas of training, with a considerable optimisation of resources.”

“The arrival of the T-346A provided the Galatina school with a generation leap. ... Students arrive at their operational units better prepared.”

“The internationalisation of the school provides a considerable degree of added value. Dealing with instructors from other cultures, other capabilities and different training and flying methods gives us an advantage.”

T. Col. Mauro M., former Commander of 212° Gruppo, 61° Stormo, Italian Air Force