

# HELICOPTER FULL-FLIGHT SIMULATOR (FFS)

Redefine Helicopter Aircrew Training



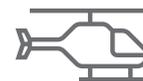


# LEADING-EDGE SIMULATION TRAINING

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The Helicopter Full-Flight Simulator (FFS) is a high fidelity training solution that meets the initial and recurrent training needs of pilots, enabling avionics and cockpit familiarisation, flight operation, navigational and task-specific training. The FFS replicates and simulates all aircraft systems, which include accurate force feedback for pilot's flight controls, avionics, communications, and cockpit displays.

In pursuit of the highest level of mission readiness, the FFS incorporates customisable visual scenarios with extreme realism, high-fidelity Computer Generated Forces (CGF) and a comprehensive Instructor Operating Station (IOS) to maximise training effectiveness.



## **Level D FFS**

Tuned from real data, with full electric 6 degrees-of-freedom (6-DOF) system, electric control loading and aircraft flight model



## **Advanced Visual Display System**

Large Field of View (FOV) visual display with high performance image generation capabilities for immersive user training experience

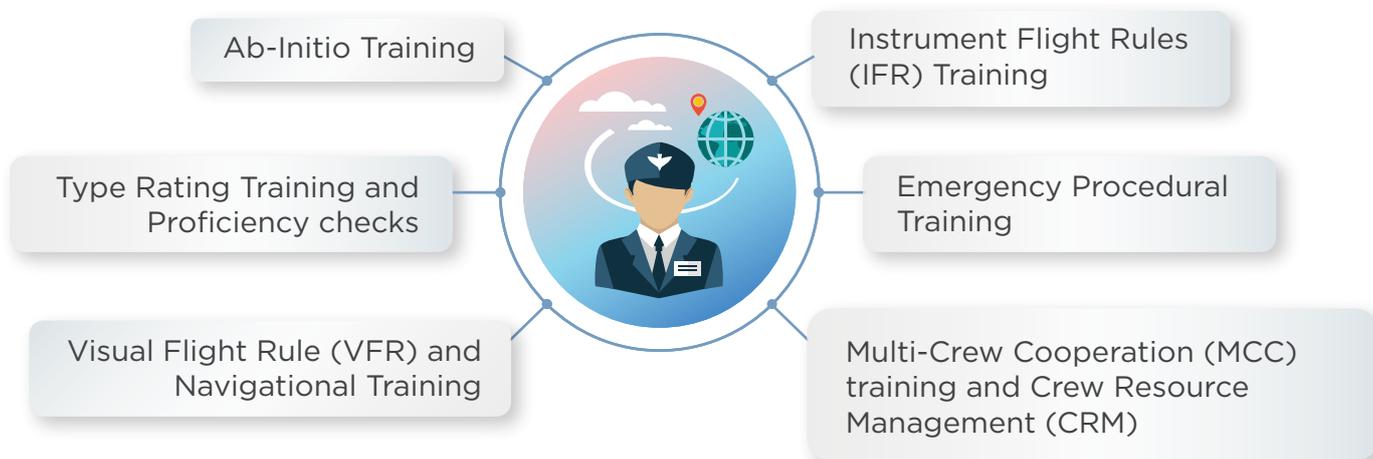


## **Comprehensive IOS**

Easy-to-use IOS with comprehensive instructional capabilities for effective scenario management and training execution

# TRAINING APPLICATIONS

## PILOT TRAINING



## MISSION TRAINING

1

### Special conditions

- Flight with night vision goggles
- Inadvertent Instrument Meteorological Condition (IMC) entry
- Air traffic conflict (collision avoidance)
- Mountain Flight

2

### Search and Rescue (SAR) operation

- Search procedures using Flight Management System (FMS) with search patterns and Forward-Looking Infrared (FLIR) camera
- Approach and winching positioning for rescue procedures

3

### Oil & Gas team transportation

- Join offshore platform to and from boarding sites
- Approach, landing, and take off to and fro fixed or mobile offshore platforms
- Airborne Radar Approach procedure

4

### Helicopter Emergency Medical Services (HEMS) Intervention

- Approach, landing, and take off to and fro accident sites and hospital decks
- Procedure and manoeuvre for winching operations

5

### Sling load exercises (aerial work, firefighting)

- Hook and release of load
- Sling load transportation
- Loading and unloading procedures

6

### Ship landing

# SPECIFICATIONS



## FFS for pilot training

- Cockpit frame and configuration adapted to actual helicopter
- Simulated operational functions of avionics suite
- Realistic electrical control loading system
- Replicated forces and travels tuned from real aircraft data with failure protection
- Motion platform with 6-DOF
- 3-DOF seat shaker platforms with vibration cues in accordance with flight phases and rotor frequencies

## Flight Simulation with specific aerodynamic programming

- Flight models tuned from real data
- Compliant with FFS Level D requirements

## Motion platform with 6-DOF

- Full electric linear motion system
- Dynamic force simulation for realistic motion cues
- Supports basic and advanced helicopter flight manoeuvres
- Safety loop for access and power failure protection

## Full Instruments Simulation

- For flight, warnings, navigation, and communication
- Graphically represented, fully simulated, or real, depending on complexity

## Customised Visual Database

- High resolution terrain
- Geo-specific features and 3D models
- Detailed insets designed to optimize mission:
  - Detailed urban area
  - High mountain area
  - Medium mountain area
  - Maritime area
  - Valley and plain area

## Immersive Visual Display

- Large projection display for immersion within visual scenes
- Multi-channel image generators and high resolution projectors
- Enhanced FOV for lower part of display essential for low altitude flight simulation

## Synthetic Environment with Customised Entities

- Air, ground, and surface activities populated by CGFs
- Configurable doctrines, behaviours and interactions
- Natural environment simulations
  - Day and night effects
  - Light points and ownship landing lights
  - Global and local weather conditions
  - Atmospheric conditions
  - Visibility effects
  - Sea states with 3D sea, brownout and downwash effects
  - Moving objects and animations
- External environment simulations
  - Conflicting air traffic animation
  - Radio navigation and radio communication possibilities
  - Automatic Terminal Information Service (ATIS) messages
  - Air Traffic Control radio chatter

## Instructor Operating Station (IOS)

- Direct view of crew, cockpit equipment and visual scene
- Easy-to-use Man Machine Interface (MMI) to control the exercise
- Displays to monitor aircraft parameters and exercise information
- Commands to modify the training scenarios
- 2D Map for aircraft positioning and visualisation of the environmental elements
- Full and private communications between instructor and the pilot or crew
- Recording and playback for post-flight debriefing

## HLA/DIS Distributed Architecture

- Connection of different systems: FFS and lower range simulators
- Local or long distance connections between different sites

## Support and Maintenance

- Fully integrated and embedded suites for:
  - Lesson plan and mission preparation and management
  - Airport and Navigation Data Tool
  - On-line Diagnostic Tool
  - Network Surveillance tool
  - Certification Test tools (Windows Auto test Generation System)

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