CEREF

Canungra Emergency Research and Educational Facility

CEREF TRAINING

EMERGENCY RESPONSE & SAR

The Need

Most rescue missions, military operations or industrial installation tasks have to be executed in a limited time. Harsh weather and stressful conditions are high risks for the aircrew. A well-trained team is essential for the success and safety of aircrew and rescued people. Operating helicopters' man-rated hoisting systems requires a high degree of confidence and expertise.

Comprehensive training in these skills can be done in a safe environment. The training starts with the basics and ends with the trainee completing a mission simulation, similar to reality. Helicopters with integrated hoisting systems are used worldwide as essential mission support equipment by:

- Rescue services
- Offshore and industrial services.
- Coastguards
- Army and naval forces
- Police and special forces

The BENEFIT

The benefits of the RHT are highly valuable for the rescue teams during training. Besides cost savings and reduction in environmental emissions, the RHT has the following benefits.

- The training intensity is ten times more efficient than in a real helicopter.
- The training is very safe, as the RHT cannot crash, and various control safety systems prevent an overload of the capacity.
- Training can be stopped at any time by activating an emergency stop button
- Training specialists and instructors supervise the training
- Learn and see everything close up and personally
- The rotor downwash sound can be switched off. Therefore, it is always possible to concentrate on the essential aspects and crew communication.
- No restrictions on the training scenarios process due to bad weather
- Training configuration with winch positions to the left and right side or with a rigid and slew-able winch
- Opportunity for a 24-hour training
- Training is not cancelled due to bad weather conditions.

The TEAM

AMST-Systemtechnik GmbH

The company is based in Austria and specialises in design and manufacturing of simulators for aviation, space medicine and aircrew training technology.

CEREF Project

The CEREF training facility will provide emergency responder trainees with realistic, effective training and skills to mitigate risk, contain damage and minimise public risk exposure. CEREF will drive successful operational and organisational outcomes by enhancing the capacity of first responders and others to operate in challenging rescue scenarios and constraints imposed by weather and equipment.

Both companies entered into close cooperation for further development. The long-term experience of AMST-Systemtechnik GmbH in designing and manufacturing of highly reliable training devices and simulation equipment combined with an enourmous experience in helicopter rescue operations of the Bergwacht Bayern leads to an enhanced unique training solution. This ensures a completely safe mission training environment for the entire helicopter rescue team while working under extreme conditions.

TRAINING OPPORTUNITIES

The primary use of the dynamic hoisting trainer is to teach aircrew coordination skills and efficient winching procedures like:

- Ground training for recovery, securing and unloading of injured persons
- Helicopter access on the airfield and during hovering
- Basic communication with radio, hand signals and coordination between pilot and rear crew
- Training of basic skills for additional aircrew members, especially paramedics, doctors and winch operators
- Familiarisation and practice of hoisting procedures and hoisting training during unstable flight conditions
- Simulation of environmental conditions such as rotor downwash, sound, light effects, darkness, and wind shear
- Simulation of emergency situations during hoisting operations
- Familiarisation of rescue dogs with the environmental conditions during helicopter flights and winching
- Water surface rescue, recovery from life rafts or from high sea states

TRAINING OPPORTUNITIES

Besides the rescue operations, an increasing demand for the RHT is pushed by a large number of projects in the field of:

- Offshore industries such as oil platforms and wind
- Power grid business parks
- Telecommunication

The training is related to installation, assembly, maintenance and repair activities. Helicopter support will increasingly become an essential tool for crew transport, fast installation and maintenance support on land and offshore. The RHT training offers the possibility to qualify technicians and engineers for their job in combination with customer-tailored mock-ups for:

- Wind power plant platforms
- Cranes
- Electrical power pole structures
- Building and plant structures
- Telecommunication equipment

These mock-ups contain all important external and internal functional elements, attachments and obstacles to simulate working conditions close to reality.

TRAINING OPPORTUNITIES

Extreme situations do not allow any compromises or mistakes; the safety of the helicopter crew and teams in special operations must be ensured. Terrorist attacks, piracy, and hostage-taking are only a few situations that need immediate access by perfectly trained special forces teams. Fast roping, rappelling, night vision operations, and Crew Resource Management (CRMI are scenarios practised with the dynamic hoist trainer.

The range of customer-tailored equipment, like fast roping devices and infrared equipment used in the RHT, makes the training situation the most realistic. Ground-based mock-ups like buildings with different roof styles or obstacles enhance the urban training environment. AMST-Systemtechnik GmbH provides well-tested customer-tailored solutions for different kinds of scenarios on demand.

Rescue Helicopter Trainer (RHT) Equipment

Overhead Crane: Special crane for man-rated handling of the helicopter mock-up. All axes have variable speed control, and the crane trolley is turnable. A specially designed crane hanger contains the air supply for the pneumatically operated roll and pitch movement of the helicopter. Crane operation is either from the helicopter cockpit with a collective and cyclic stick or a floor-level radio control unit. A safety logic controller operates the crane and the simulator. The equipment is designed for indoor operation without heating and air conditioning.

Support Frame and Equipment Platform: They carry the electrical and pneumatic units, loudspeakers for sound simulation, strobe lights for light effects, rotor downwash fans with variable speed control, roll and pitch actuators, as well as the hoisting system. The circular shape of the platform simulates the working range of the rotor blades. The winch system has special safety features for man-rated training and an x-y positioning system for hoisting cable support. The x-y support simulates any kind of rescue hoist configuration on both sides of the helicopter. A maximum load capacity of 270 kg can be lifted with variable speed control up to 40 m/min.

RHT HELICOPTER MOCK-UP

Based on a stripped-down version of an original helicopter structure that can be adapted for demanding training, AMST designed a universal helicopter mock-up representing different helicopter types and their winch arrangements. The mock-up solution contains:

A cockpit with:

- Cockpit doors
- Adjustable seats, interior light and heating system.
- Instrument panel with video control display, sound computer and technical display
- Radio control panel, operating elements, digital and analog radio control units
- Overhead panel with communication control unit and headset connectors
- Cyclic stick and collective flight control

A cabin with:

- Sliding door port and starboard-side
- Lockable rear door
- Interior light and floor heating system
- Removable rail system for seat and equipment installations.
- Securing points for the winch operator and crew
- Connectors for winch handgrips at the left and right sides of both doors
- Headset connectors and Bulkheads to the cockpit

Attachments outside:

- Searchlight
- Skids and platforms
- Landing gear or wheels
- Video cameras for the supervision of the hoisting and landing area

RHT HELICOPTER ALL CONDITIONS

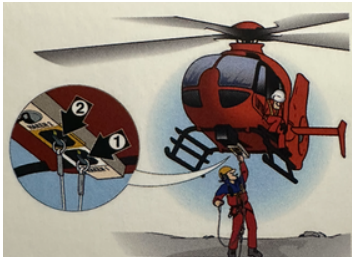
Training will be conducted in simulated environments. This will allow your crew to practice challenging rescues in a multitude of complex environments.

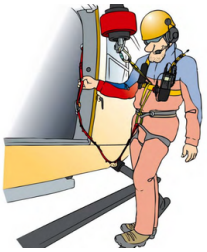
Day: Training can be conducted during all times of the day set by your schedule. Early morning or late in the afternoon.

Night: With accommodation on site, we can conduct night training. Your crew can be woken up early hours of the morning or late at night to experience night conditions.

Wind and Rain: During your training scenarios, we can create a range of environments for your crew to experience, such as high winds, rain and high seas. This will expose your team to close to challenging real-life environments in controlled scenarios. Your crews can do these scenarios repeatedly, stopping to debrief before completing the same scenarios.

RHT
TRAINING SUPPORT





Advanced support with a custom-tailored training syllabus completes the services of AMST-Systemtechnik GmbH, Austria and CEREF Based on an e-learning system, all important basics will be taught with several learning modules, such as:

- Theoretical background
- Advanced information for course preparation
- How to use procedures
- Important information about different helicopter configurations:
- Winch system
- Securing attachments
- Hook types
- Rescue auxiliaries
- Standards

Instructor courses for basic training with rescue winch, rope systems, water rescue, fast roping, firefighting operations and refresher training will ensure a high outcome of this investment.

RHT
TRAINING SYLLABUS

Basic Training Course:

- Handling and transport of persons with a rescue helicopter
- Health and safety briefing and personal safety equipment
- Correct procedures close to and in the helicopter :
- Communicating with the helicopter crew in the helicopter
- Embarking and disembarking with different winch positions - left or right

Advanced Training Course in a helicopter-supported water rescue:

- Correct use of the rescue tools, such as the rescue triangle and the rescue sling
- Familiarising with and training in air rescue procedures in a calm and running water, white water and high sea state conditions
- Evacuation procedures during flooding

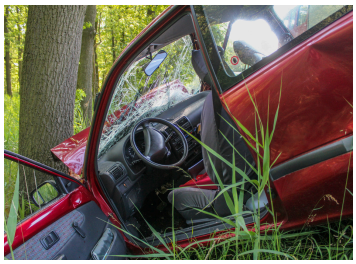
Advanced Training Course in air rescue with various winch arrangements:

- Correct use of the rescue tools, such as the
- rescue triangle, air rescue bag and the cut rescue loop
- Familiarising with and training in air rescue procedures, such as:
  - Patient winch with rescue triangle and air rescue bag
  - Cut-rescue

Annual Training Repetition:

- A short briefing of the procedures and the commands
- Simulated training of selected air rescue procedures

OUTDOOR TRAINING



Vertical Rescue:
The training will include real-life environments such as embankments, cliffs, and structures. In this section, we can create weather conditions to add complexity to the rescue. This scenario, in turn, will help you better prepare your staff to respond to the event in heavy rain or wind.

Hazmat:
Hazardous Chemical: Using a tanker rollover onsite, we can teach all aspects of hazardous chemicals emergency management, including environmental controls. Students will learn to manage hazardous chemicals and control runoffs to prevent environmental impact.

Plane Crash search and Rescue:
A plane has crashed, and teams will have to respond to fire and assist the airline in evacuation of the plane and conduct search and rescue in complex terrain.

Road Crash Rescue (RCR):
Student will be exposed to how to respond to RCR in all different difficult terrain, including:
Outdoor: natural embankments, roads and tracks.
Indoors: flooding and extreme weather conditions.

OUTDOOR TRAINING

Fire:

This training will include as close to real-life response using augmented reality and firehouse simulators. This will give your first responders a chance to be trained in a close-to real-life environment, with minimal Risk. Manage the day to day operation of a fire/ Emergency Response station and equipment.

Remote Area Firefighting (RAF):

RAF refers to firefighting operations in areas that are difficult to access or far away from urban areas. These areas can include forests, mountains, and other remote locations where fires can quickly spread due to dry vegetation and high winds.

RAF operations require specialised skills and equipment and a different approach compared to traditional firefighting in urban areas. This is because these areas often need more infrastructure and are more challenging to access, making it more difficult to transport firefighting personnel, equipment, and water.

OUTDOOR FLOOD AND SWIFT WATER RESCUE

Floods and swift water rescue:
Students will be trained in a simulated environment that allows them to experience different environmental aspects they may face in responding to swift water emergencies caused by flooding and responding to recreational swift water emergencies.

Dive Rescues:
In our specialised water facility training centre students will learn how to manage industrial and recreational emergencies while diving, including deep water, cave and how to handle Bends sickness.

Helicopter Underwater Evacuation training (HUET):
The HUET training will be conducted in our purpose-built facility. It will allow students to experience a range of challenging environments, preparing them to work offshore or as part of their search and rescue crew training.

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