

ABEEólica Guideline for Safety and Professional Training in the Wind Industry

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ABEEólica

ONSHORE OFFSHORE



GLOBAL WIND
ORGANISATION

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List of abbreviations

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ART Advanced Rescue Training

BST Basic Safety Training

BTT Basic Technical Training

C&H Crane and Hoist

CoHE Control of Hazardous Energies

EPI Personal Protective Equipment

FA First Aid

HSIB Hub, Spinner and Inside Blade Rescue

ABEEólica Associação Brasileira de Energia Eólica e Novas Tecnologias

GWO Global Wind Organisation

MH Manual Handling

NR Brazilian Regulatory Standard

NTBR Nacelle, Tower and Basement Rescue

O&M Operations and Maintenance

SLS Slinger Signaller

WaH Working at Heights

Terms and Definitions

Terms and Definitions

Shall

Verbal form used to indicate requirements to be followed in order to conform to this training standard and from which no deviation is permitted.

Should

Verbal form used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required.

Must

For clarity where the word must is used in this standard it shall have the same meaning as shall.

Validity period

States the length a course is valid for before a participant should renew based on skills fade.

Stakeholder

People with an interest in the project. This could be individuals (e.g. landowners) or groups such as member organisations.

Skilled

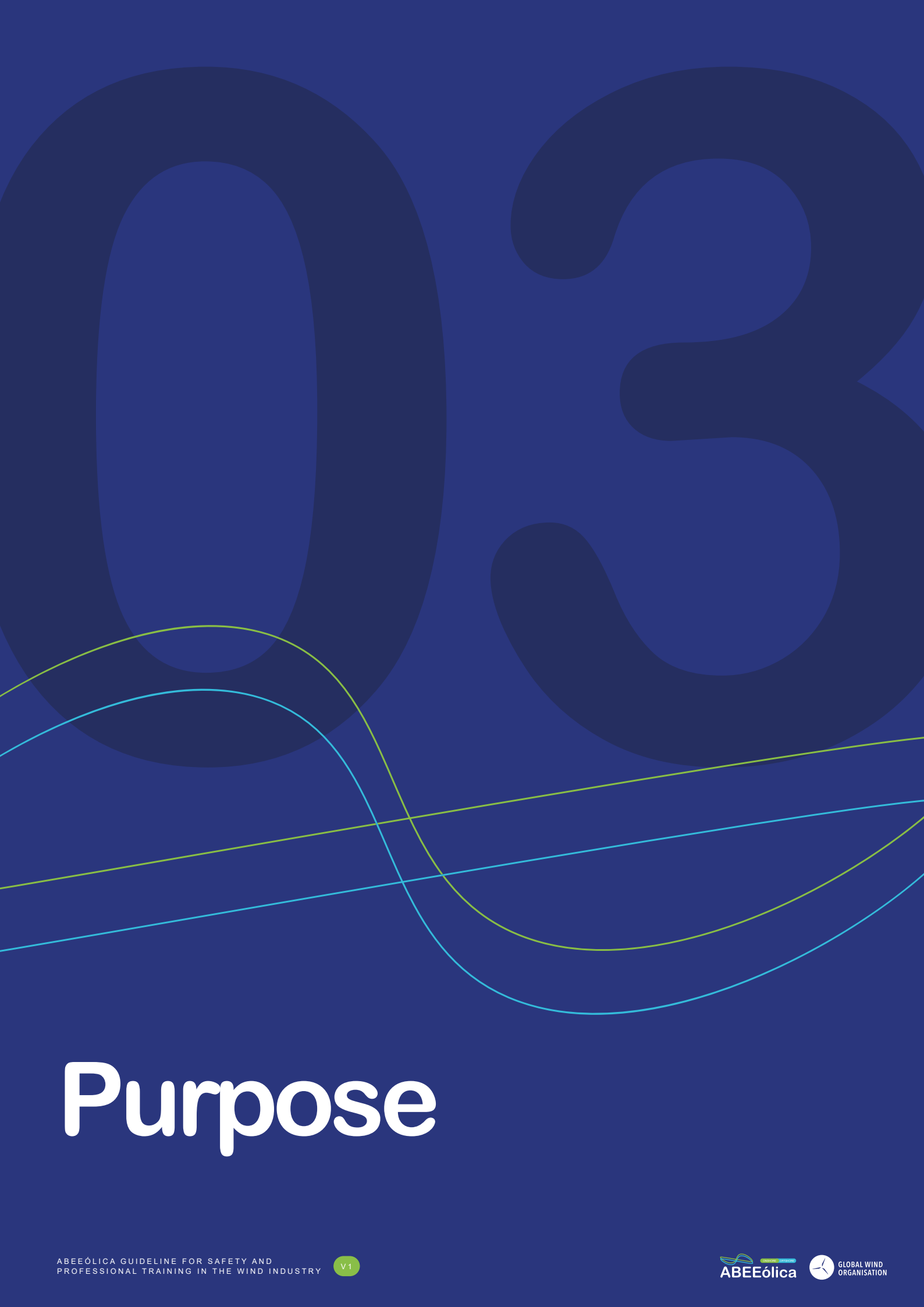
A skilled wind maintenance technician has the necessary training, qualifications, and experience to independently perform the basic job functions in addition to taking on more specialised and advanced work.

Wind Professional

Professionals who carry out tasks ranging from assembling, installing, inspecting, servicing, maintaining, operating, and repairing wind turbines.

Technician

A skilled worker who performs direct work.



Purpose



Purpose

The goal of these guidelines is to provide clear routes for new entrants into the wind industry and guide a person towards the appropriate training for the job profile of a wind professional. The ABEEÓlica Wind Professionals Guideline will recommend a transparent and valid set of standardized skills for entry level roles in the operations and maintenance of wind turbines for onshore and offshore wind facilities.

These guidelines explain the skills and training recommended for wind professionals entering the industry. As the introduction of offshore wind power expands in Brazil in the future, the demand for wind professionals is expected to increase dramatically, and there are concerns about a shortage of personnel to meet that demand. These guidelines aim to avoid the talent shortage by lowering the barriers to entry into the wind power industry. They also promote the hiring and development of technicians. To be able to hire in at scale, this guideline recommends competences and training considered important for these roles. Further, the guideline describes how globally recognized GWO training standards may be applied as the baseline for learning and competence, as this training is delivered under a quality assured governance system and is globally accessible. Finally, the guideline examines how competence and training needs assessment of this role meets the legal requirements in Brazil.

It also explains the career steps for wind professionals. In conducting training or performing tasks based on these guidelines, strict compliance with Brazilian regulations is the highest priority. Adhering to these laws ensures the safety and health of wind professionals and helps prevent legal issues.

These guidelines provide specific information on the skills required for wind professionals. In particular, operators considering entering the wind power industry can obtain useful information when preparing for maintenance work by picking up these guidelines when starting in the wind power maintenance business. This guideline also contains information that is useful for operators who have already started the business to streamline and improve their maintenance work. In addition, these guidelines are categorised by job role so that wind professionals can receive training appropriate to their job content.

The guidelines clearly outline effective and transparent standard skills for novices in the operation and maintenance of wind power generation facilities in the field of wind power generation equipment services.

04

Scope and Methodology

Scope

Recognizing this challenge, ABEEÓlica and GWO have jointly identified a unique opportunity: the creation and publication of an industry-endorsed guideline for basic safety and technical training specifically tailored for wind professionals. Simultaneously, the guidelines seek to bridge the existing gaps between GWO's standards and the specific requirements of the Brazilian wind industry, thereby promoting a harmonious and effective integration of global best practices and local needs. The ultimate aim is to reduce duplication of training and enable new professionals to enter the industry quickly and safely.

Methodology

This guideline has been developed in response to the demand for recognisable training in the industry and has been prepared in co-operation between the members of ABEEÓlica and GWO based on Brazilian laws and regulations including the Regulatory Standards developed by the Ministry of Labor and Employment that are mandatory for all companies and workers in Brazil.

As a collective body representing the largest employers in wind in Brazil, ABEEÓlica and GWO working in collaboration have the necessary scale and insight to provide clear guidance to the industry with reference to identified roles that are carried out by technicians within core components of the wind energy value chain.

ABEEÓlica members support the completion of relevant training by all professionals working on wind turbines, in alignment with their respective roles. These guidelines were developed in response to requests from operators considering entering the wind power industry for the first time, as well as from overseas operators, regarding what type of work is first assigned to wind professionals. It was developed through the cooperation of ABEEÓlica members and GWO, based on training recognised in the wind power industry and Brazilian regulations. The needed NRs were agreed and then the content was reviewed line by line against GWO's training standards to demonstrate how GWO's global standards meet the requirements in Brazil and the standards required by industry leaders in Brazil.

Reviewed Materials

This guideline serves as an analysis of the equivalency between the requirements in Brazil and what is available in through standardized training. This analysis was completed with the member support of ABEEÓlica and the organisational support of GWO. NR 1.7.1 was referred to as a foundational document to guide the process and the analysis.

STANDARDS REQUESTED BY WIND ENERGY COMPANIES



Current state

These standards are required by the Brazilian Ministry of Labour and Employment, but are not specific to the wind industry. By not having a field specific guidance, employers in the industry must find the standards and parts of standards that apply to the work of wind professionals.

This can result in varying, repetitive, and occasionally less relevant response to this landscape, GWO training standards are based on industry best practices by our members and by the leading industry employers setting a global standard for needed training. The use of these globally recognized training standards leads to duplicated training in Brazil to meeting local regulations as each NR has a specific training that must be delivered by a certified person.

The related gap analysis demonstrates where each point in the corresponding NRs is covered in GWO standards and where it is currently duplicated for wind professionals working in the industry as GWO members use the Entry Level Framework to train their new technicians.

Gap Analysis

ABEEÓlica and GWO, with the cooperation of members, conducted a gap analysis (outlined in Appendix 2) to visualise the extent to which the content of the training for which GWO sets standards (commonly known as GWO training) is consistent or deviates from the courses and education based on Brazil's regulations.

The results of the gap analysis are available through the ABEEÓlica website. Below are the methods used to conduct the gap analysis:

- 1 Review the items of training and education stipulated by Brazilian regulations.
- 2 Verify if there are the same or similar items in the training standards for each module of the GWO.
- 3 If no similar items are found, also check the content of the training standards.
- 4 Enter the name and chapter number and title of related material.

Future state

In compliance with NR 1, the creation of GWO and ABEEÓlica's partnership to develop national guidelines serves as an organisationally led demonstration of how wind companies are meeting and exceeding the NR requirements by adopting recognized training standards.



Requirements for Training

This document outlines the recommended requirements for training providers to deliver training to GWO Standards and Frameworks. It is intended for use by prospective and existing certified GWO training providers and defines acceptable conditions and prerequisites for safety and technical training in the renewable energy industry. It is not an independent Standard, but rather a description of the system that applies to all Training Providers. It is listed in the gap analysis as many important requirements within NRs 1, 6, 18, 33, 35 are met here rather than in the specific standards.

Overview of the Guidelines

Overview of the Guidelines

The ABEEólica Guidelines for Wind Professionals (the Guidelines) describe a set of recommended training that is accepted by ABEEólica members. The job profile for a professional is accompanied by a list of training standards and modules that ABEEólica have been recommended as necessary based on requirements from the ministry of work.

In some cases, additional training, that is currently outside of the GWO standards portfolio, is recommended.



What is a wind technician and wind professional?

What is a wind technician and Wind professional?

A wind technician is a broad term for professionals who carry out tasks ranging from assembling, installing, inspecting, servicing, maintaining, operating, and repairing wind turbines.

Working alongside more experienced technicians, many wind professionals are involved in building new wind turbines, assisting with the commissioning and installation of towers, tower internals, nacelles, electrical systems, hubs and blades. Other wind professionals are assigned to service and maintenance tasks which may include: repair of components and systems, and replacing worn out or malfunctioning components.

For all job tasks, wind professionals and technicians must always follow manuals, specifications, bulletins to complete assigned tasks and ensure all work is performed in accordance with industry standards and associated policies/procedures.

Wind turbines are often installed in remote locations onshore and offshore and wind professionals and technicians are expected to work in varying temperatures and adverse weather conditions, often far from home for extended periods of time. Wind professionals and technicians must, therefore, be able to use their skills in this unique environment. They must be capable of climbing ladder systems, often to heights above 80 metres, to reach the turbine nacelle, where the components that generate electricity are located and most tasks are required. Wind technicians must be able to ascend the turbine quickly, and in some territories, using climb assist equipment.

Owing to these factors, wind technicians must be comfortable working in small spaces and at height. Physical fitness is vital for a wind technician.



Main areas and abilities

Main areas of knowledge, skill and ability often required for wind professionals

General

- 1 Ability to achieve and maintain employer specific fitness for duty requirements. Fit to work
- 2 Attention to detail
- 3 Comprehend basic system diagrams, schematics, and symbol
- 4 Collaboration and teamwork
- 5 Mechanical and/or electrical fundamentals
- 6 Proficient with basic software, computer, and mobile devices
- 7 Ability to work in small spaces and work at heights
- 8 Basic knowledge of health safety and emergency procedures, Environmental awareness

Perform

- 1 Wind technicians must be able to climb ladder systems to height of turbine nacelle, often with tools and equipment. Some towers may be 80 meters high or taller and some may use a service lift or climb assist. Therefore, wind technicians should be able to work for long periods.
- 2 Physical strength. Wind technicians may need to lift heavy equipment and parts and tools. Ergonomics manual handling requirements. Mental health. Physical fitness sufficient to execute appropriate ergonomic manual handling. Able to work (in accordance with Brazilian regulation).
- 3 Comfort with heights and confined spaces. Service technicians often must repair turbines that are over 80 meters high. In addition, technicians must work in spaces with limited access and egress in order to access mechanical components of the turbine.
- 4 Wind technicians must document and submit reports on the results of testing, inspections, repairs, or problems they find when carrying out inspections and repairs. Their writing must be clear and well organized so that others can understand the reports.
- 5 Awareness of and the ability to follow all health and safety and operating procedures.
- 6 Participate in daily job task planning activities as it relates to their safe performance of tasks.
- 7 Prepare routine reports and correspondence, some using a computer. Maintain accurate service
- 8 Follow written procedures and equipment manuals.
- 9 Risk assessment of hazards.
- 10 Interact with necessary stakeholders, team members, and collaborating partners as directed by supervisor.
- 11 Use and be familiar with a variety of personal protective equipment (PPE) such as safety harnesses, safety and high vis clothing, safety glasses, helmets, gloves, and safety shoes.
- 12 Interpreting weather impacts on safety and preparedness.
- 13 Perform rescue operations in emergency situations. Self-evacuation. Using specific equipment.

Main areas of knowledge, skill and ability often required for wind professionals

Wind Professional

MAY ASSIST UNDER THE SUPERVISION OF A HIGHER SKILLED TECHNICIAN, SUPERVISION: NR 10

- 1 Safe operation and performance of scheduled and unscheduled mechanical, electrical, and hydraulic maintenance activities for wind turbines.
- 2 Hoisting and rigging.
- 3 Support diagnostics and troubleshooting through sampling and measuring.
- 4 Replacement of major turbine components (e.g. generators & gearboxes).
- 5 Identification of failures, faults, and problems, and implementation of corrective actions.
- 6 Conducting acceptance and performance tests on systems and equipment following planned maintenance and outages.
- 7 Assisting with electrical system operations, maintenance, and repair.
- 8 Advanced rescue

Career pathways and other roles

Higher level, skilled wind technicians have familiarity with all systems of the wind turbine including structural, mechanical, electrical, controls, communications, electronic components, hydraulic systems, and environmental safety and health systems.

With experience and further training, the wind technician may progress to carrying out more complex jobs depending on interests and abilities. These include job roles such as lead technician (installation); lead technician (service); commissioning technician; trouble shooter, high voltage specialist and site supervisor.

Skilled wind technicians must understand and be able to maintain, troubleshoot and repair all mechanical, hydraulic, braking, and electrical systems of a turbine.

There are other non-technician roles that may be granted access to the wind turbine. These will usually be trained to meet the risks using a limited access course or the GWO Basic Safety Training only.



Installation

Installation Job Profile

The installation wind professional participates in installing and building new wind turbines in a safe and professional manner. This includes loading and unloading, installing mechanical and electrical systems, and the assembly of a turbine during the execution of a project. They work with a team to perform electrical and mechanical testing, maintenance and repairs, and follow manufacturer and safety guidelines. Installation can occur both on and offshore depending on the project, usually carries out a variety of tasks in connection with tower section assembly in a safe and professional manner on wind turbines. This role is critical to minimizing risks during the installation of the turbine. This includes preparing components for installation, inspecting, cleaning, and assembling parts according to manufacturer and safety guidelines.

Common job tasks for this job profile include working under supervision to:



Use safe working procedures and appropriate personal protective equipment



Solve basic mechanical tasks e.g. principles of bolted connections



Carry out basic installation tasks e.g. main component preparation, pre-assembly and assembly



Prepare and hand over for commissioning



Inspect welded connections



Assist in the assembly of the tower sections



Install cables inside the tower



Assist in the termination of cables inside the tower



Install turning gear



Prepare control systems for installation



Install component into the tower



Prepare nacelle, tower and blades for installation



Safely use necessary tools and equipment

Service

Service Job Profile

The Service Wind Technician performs planned (and unplanned) maintenance and replacement of parts, in a safe and professional manner on wind turbines. Detailed records, including of all parts used, must be completed for all work performed. Technicians report to site management communicating any needs and or safety issues that arise and perform preventive maintenance as required.

This role is responsible for maintaining and repairing, as directed, machinery or components used mainly in power generation applications, turbines, and generators. They are not certified to perform work inside any cabinet or on any controller without direct supervision by a certified electrical technician.

Common job tasks for this job profile include working under supervision to:



Use safe working procedures and appropriate personal protective equipment



Perform planned and unplanned maintenance in a safe and professional manner on wind turbines



Ensure areas in the wind turbines, switch room and O&M building are safe for use after analysing potential electrical or mechanical hazards



Report to site management and communicate needs and or safety issues that arise



Follow installation and operation manuals



Assist in the assembly of the tower sections



Safely use necessary tools and equipment



Work collaboratively with engineers and other technicians to solve complex problems



Participate in training sessions to stay updated on new technologies and work methods



Document all activities performed, such as maintenance, inspections, and replacements

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Model Description



Model Description

In these guidelines, we have categorised and modelled the recommended training into the three categories below. (Note: the following model has been developed in consultation with wind turbine manufacturers, training providers, other companies delivering GWO training, and practitioners. Depending on the individual business circumstances of training participants and the training objectives, there may be other important aspects beyond those outlined in this model.)

CORE

The minimum training that is recommended for entry level wind professionals in any situation or context in which they work.

TASK-SPECIFIC

Recommended training for certain types of tasks.

COMPANY AND REGION SPECIFIC

Training that is recommended due to the company's business environment or region-specific circumstances



Wind Professional Training Overview

WIND PROFESSIONAL TRAINING OVERVIEW

GWO STANDARD	BRAZILIAN REGULATORY STANDARD											
	NR01	NR06	NR10	NR12	NR17	NR23	NR25	NR26	NR35	NR11	NR18	NR33
GWO REQUIREMENTS FOR TRAINING	X	X									X	
GWO BASIC SAFETY TRAINING												
FIRST AID		X	X						X			X
MANUAL HANDLING		X			X							
FIRE AWARENESS		X	X			X			X			
WORKING AT HEIGHT		X	X						X			X
SEA SURVIVAL		X										
GWO BASIC TECHNICAL TRAINING												
MECHANICAL		X		X								
ELECTRICAL		X	X	X								
HYDRAULIC		X		X								
BOLT TIGHTENING		X		X								
INSTALLATION		X		X								
COHE												
BASIC SAFETY		X	X									
ELECTRICAL SAFETY		X	X	X								
PRESSURE FLUID SAFETY		X		X								
ADVANCED RESCUE												
HUB, SPINNER		X	X		X				X			X
NACELLE, TOWER AND BASEMENT		X	X		X				X			X
ENHANCED FIRST AID		X										
CRANE AND HOIST												
BASIC USER		X		X						X	X	
INSPECTION AND MAINTENANCE		X		X							X	
SLINGER SIGNALLER		X								X	X	
SERVICE LIFT												
USER		X								X		
INSPECTION AND MAINTENANCE		X								X		
BLADE REPAIR		X										

CORE

TASK ESPECIFIC

GWO CORE MODULES

CORE MODULE	DESCRIPTION	CORRESPONDING NR
GWO BASIC SAFETY TRAINING*		
First Aid	The aim of this module is to enable participants, through theoretical and practical training, to recognise signs and symptoms of life threatening situations and administer safe and effective first aid in the wind turbine industry/WTG environment in order to save lives and prevent further injury, until the casualty can be handed over to the next level of care.	NR 6, 10, 33, 35
Manual Handling	The aim of this module is to enable participants, through theoretical and practical training, to reduce the risk of musculoskeletal injuries for wind technicians in the wind industry and enable participants to perform their tasks and activities in the safest possible way when working in a wind turbine environment.	NR 6, 17
Fire Awareness	The aim of this module is to enable the participants to prevent fires, make appropriate judgements when evaluating a fire, manage evacuation of personnel and ensure all are safely accounted for in the event of an unmanageable fire. If the incident is judged to be safe, the participants should be able to efficiently extinguish an initial fire by using basic handheld firefighting equipment.	NR 6, 10, 23
Working at Heights	The aim of this module is to enable the participants, through theoretical and practical training, to use basic personal fall protective equipment, work safely at height and perform comprehensive basic ladder rescue from height in a remote wind turbine environment.	NR 6, 10, 33, 35
CRANE AND HOIST		
Basic User	Training in accordance with this Crane and Hoist Training Standard will enable wind industry personal to safely operate, inspect and maintain common types of fixed, small cranes and hoists in the wind industry by following manufactures manuals, documentation, and relevant legislation.	NR 6, 11 12, 18

*GWO BST validity period is 24 months

GWO CORE MODULES

CORE MODULE	DESCRIPTION	CORRESPONDING NR
GWO BASIC TECHNICAL TRAINING**		
Electrical	The aim of this module is to give the participants the knowledge and skills to carry out basic electrical tasks (supervised by an experienced technician), using safe working procedures and the correct PPE.	NR 6, 10, 12
Mechanical	The aim of this module is to give the participants the knowledge and skills to carry out basic mechanical tasks (supervised by an experienced technician), using safe working procedures and the correct PPE.	NR 6, 12
Hydraulics	The aim of this module is to give the participants the knowledge and skills to carry out basic hydraulic tasks (supervised by an experienced technician), using safe working procedures and the correct PPE.	NR 6, 12
Bolt Tightening	The aim of this module is to improve the safety and quality of bolt tightening using energy powered tools and accessories in the wind industry. This module covers both how to tighten bolts safely and correctly, and how to plan, document and review bolt tightening tasks.	NR 6, 12
GWO ADVANCED RESCUE TRAINING ***		
Hub, Spinner, & Inside Blade Rescue	The aim of this module is to enable the participants to perform injured person rescue operations, in a WTG hub, spinner and inside the blade by using industry standard rescue equipment, methods and techniques, exceeding those of the GWO Working at Heights Module.	NR 6, 10, 17, 33, 35
Nacelle, Tower & Basement Rescue	The aim of this module is to enable the participants to perform injured person rescue operations in a WTG nacelle, tower, and basement, by using industry standard rescue equipment, methods, and techniques, exceeding those of the GWO Working at Heights Module.	NR 6, 10, 17, 33, 35

*GWO BST validity period is 24 months

**Participants must have a valid GWO BTT Mechanical record before attending GWO BTT Bolt Tightening

***Participants must hold a valid GWO BST Working at Heights, Manual Handling, and First Aid training record in order to attend GWO Advanced Rescue Training. Validity is 24 months

GWO TASK SPECIFIC MODULES

TASK MODULE	DESCRIPTION	CORRESPONDING NR
Crane & Hoist Inspection and maintenance	The aim of the training is to enable the technician to inspect, maintain, and test fixed small cranes and fixed hoists complying with relevant legislation and according to relevant manufacturer's inspection and maintenance manuals and documents.	NR 6, 11, 12, 18
Slinger Signaller	The aim of this module is to enable the participant to support and care for themselves and others while working with a crane as the designated signalperson and/or rigger in the wind industry by possessing the required knowledge, skills, and ability to conduct assigned tasks safely and efficiently.	NR 6, 18, 11
Enhanced First Aid	The aim of the module is to enable the participants to support and care for others working in the industry and to provide ongoing care to an ill or injured casualty over a short period of time while waiting for professional emergency rescue teams to arrive	NR 6, 10

GWO TASK SPECIFIC MODULES

Sea Survival	The aim of this module is to give the participant, by theoretical and practical training, the ability to act safely and responsibly and to take the correct preventive actions in transfer from shore to installation vessel (or WTG) and vice versa by demonstrating sea survival techniques and safe transfer between vessels and installations. This is both during normal operations and in an offshore wind energy environment emergency.	NR 6
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GWO BASIC TECHNICAL TRAINING**

Installation	The aim of this BTT Installation Module is to give the participants the knowledge and skills to carry out basic installation tasks (supervised by an experienced technician), using safe working procedures and the correct PPE.	NR 6, 12
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GWO SERVICE LIFT

Service Lift-Use	The Service Lift User Module training is aimed at users of lifts in the wind industry.	NR 6, 11, 12
Service Lift Inspection and Maintenance	The Service Lift Inspection and Maintenance Module training is aimed at ensuring the readiness of a lift in a WTG. This is achieved by; first, inspecting and maintaining the lift plant by initial inspections for the purpose of commissioning the lift; secondly, required general inspections; and finally, inspections after replacement of main components.	NR 6, 11, 12
Service Lift Installation, Inspection and Repair	The Service Lift Installation, Inspection and Repair Module is aimed at performing installation and repair, commissioning, inspection, and maintenance work on a lift in a WTG.	NR 6, 11, 12

Company and Region-Specific Overview

Employees entering the wind industry will often be expected to complete company specific courses. Common courses include (but are not limited to):

1 safety rules on construction sites

2 documentation training

3 safe systems of work

4 climb assist

5 confined space

6 wind turbine familiarisation

7 gap training to local regulations

12

Career pathways and job roles



Career pathways and job roles

With time and experience an entry level wind professional can develop and train into other roles and responsibilities as well as specialist roles.

Skilled wind technicians have familiarity with all systems of the wind turbine including structural, mechanical, electrical, controls, communications, electronic components, hydraulic systems, and environmental safety and health systems.

With experience and further training, a wind technician may progress to carrying out more complex jobs depending on interests and abilities. These include job roles such as lead wind technician; commissioning wind technician; trouble shooter, high voltage specialist and site supervisor.

Skilled wind technicians must understand and be able to maintain, troubleshoot and repair all mechanical, hydraulic, braking, and electrical systems of a turbine.



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Annexes

Annex 1

OVERVIEW OF GWO TRAINING TO NR

CORES NR	CORRESPONDING GWO TRAINING
1	GWO Requirements for Training
6	GWO BST, GWO BTT, CoHE, ART, EFA, C&H, SLS, Lift, BR, WLA – ONL, OFL
10	GWO BTT-E, BST-FA, GWO BST – MH, FAW, WAH, CoHE – BaSC, ES, ART – H, N
12	GWO BTT-M, E, H, B, I; CoHE-ES, PFS; C&H-Basic; SLU
17	BST – MH, ART – H, N
23	BST – FAW
25	
26	
35	GWO Requirements for Training, BST – FA, WAH, ART – H, N
TASK SPECIFIC NRS	CORRESPONDING GWO TRAINING
11	C&H-CHBU and CHIM, SLS, SLU
18	GWO Requirements for Training, C&H – CHBU, SLS
33	GWO Requirements for Training, ART – H, N

Annex 2

OVERVIEW OF TRAINING COURSES

GWO BASIC SAFETY TRAINING

COURSE OVERVIEW

Five recommended Global Wind Organisation training modules come together to create an introductory standard for the wind industry and provides the initial certifications needed to get started. Duration and validity for these modules is given in the Annex 3.

COURSE OBJECTIVE

The GWO Basic Safety Training enables participants to support and care for themselves and others working in the industry by possessing the knowledge and skills of first aid, manual handling, fire awareness, working at heights, sea survival and in case of an emergency, to be able to evacuate, rescue and provide appropriate first aid to casualties.

COURSE CONTENT

A GWO Basic Safety Training package includes:

BASIC SAFETY TRAINING

MODULES

MODULE 1

GWO FIRST AID

MODULE 2

GWO MANUAL HANDLING

MODULE 3

GWO WORKING AT HEIGHT

MODULE 4

GWO FIRE AWARENESS

MODULE 5

GWO SEA SURVIVAL

PREREQUISITES

In order to complete a GWO Basic Safety Training, participants shall be:

- WINDA registered before arriving for the course
- medically fit and capable of fully participating.

COURSE VALIDITY

The validity period is 24 months

Annex 2

OVERVIEW OF TRAINING COURSES

GWO BASIC TECHNICAL TRAINING COMBINED

COURSE OVERVIEW

GWO Basic Technical Training is an entry level course that enables participants to perform basic hydraulic, mechanical, bolt tightening and electrical tasks in a wind turbine environment under the supervision of an experienced technician. Duration and validity for these modules is given in the Annex 3.

COURSE OBJECTIVE

This package shall enable participants to be able to perform basic hydraulic, mechanical, electrical, bolt tightening and installation tasks under the supervision of an experienced technician. This course will not make the participant a trained person who is allowed to perform hydraulic, mechanical, electrical, bolt tightening or installation work without supervision.

COURSE CONTENT

A GWO Basic Technical Training package includes:

GWO BTT PACKAGE

MODULES

MODULE 1

GWO ELECTRICAL

MODULE 2

GWO MECHANICAL

MODULE 3

GWO HYDRAULICS

MODULE 4

GWO BOLT TIGHTENING

MODULE 5

GWO INSTALLATION

PREREQUISITES

In order to complete a GWO Basic Technical Training package, participants shall be:

- WINDA registered before arriving for the course
- Medically fit and capable of fully participating

COURSE VALIDITY

Enduring qualification, validity period does not apply.

Annex 2

OVERVIEW OF TRAINING COURSES

GWO SLINGER SIGNALLER TRAINING

COURSE OVERVIEW

Slinger and signaller personnel have the responsibility of ensuring the safety of all lifting crew members throughout crane and slinging operations. The training provide participants with the knowledge and skills to safely carry out basic signaller and slinger operations. Participants will become competent in the role of a slinger signaller. More information in Annex 3.

COURSE OBJECTIVE

Training in accordance with this standard aims to prepare participants to take responsibility to support and care for themselves and others while working with slinger and signalling operations in the wind industry by possessing the required knowledge, skills, and ability to conduct assigned tasks safely and efficiently.

COURSE CONTENT

Participants completing a GWO Slinger Signaller (SLS) course are trained in general theory on slinger signaller as well as practical elements.

GWO SLINGER SIGNALLER

MODULES

SLS THEORY

GENERAL THEORY

SLS PRACTICAL

PRACTICAL ELEMENTS

PREREQUISITES

In order to complete a GWO Control of Hazardous Energy course, participants shall be:

- WINDA registered before arriving for the course
- Medically fit and capable of fully participating.

COURSE VALIDITY

Validity period does not apply.

Annex 2

OVERVIEW OF TRAINING COURSES

GWO CONTROL OF HAZARDOUS ENERGIES

COURSE OVERVIEW

The GWO CoHE training describes training that complements company, turbine, regional and equipment specific CoHE trainings by providing a common basis for CoHE trainings that are recommended by the members of GWO but does not automatically qualify the participants. These nominations can only be granted according to company specific trainings, rules and procedures along with national and regional legislation. Duration and validity for these modules is given in the Annex 3.

COURSE OBJECTIVE

The GWO CoHE Standard training aims to prepare participants to manage the risks related to hazardous energies in the wind industry and act safely when in the vicinity of hazardous energies or when working on systems and equipment containing hazardous energies. Modules in this standard cover:

- **Basic safety:** including Lock out-Tag out, ordinary person, mechanical safety;
- **Electrical safety:** including PPE, safe working practices, testing and isolation, stored energy;
- **Pressure fluid safety:** including requirements and roles, hazards, PPE, safe working practices, response to incidents.

COURSE CONTENT

The standard comprises of three modules:

GWO COHE TRAINING

MODULES

MODULE 1

GWO COHE BASIC SAFETY

MODULE 2

GWO COHE ELECTRICAL SAFETY

MODULE 3

GWO COHE PRESSURE FLUID SAFETY

PREREQUISITES

In order to complete a GWO Control of Hazardous Energy course, participants shall be:

- WINDA registered before arriving for the course
- Medically fit and capable of fully participating.

COURSE VALIDITY

Enduring qualification, validity period does not apply.

Annex 2

OVERVIEW OF TRAINING COURSES

GWO SERVICE LIFT

COURSE OVERVIEW

The GWO Service Lift Standard is a generic training standard comprised of three modules that covers all types of lifts in wind turbines. Its generic nature emphasises the need to applying relevant specific manuals and guides when using and working on lifts. Duration and validity for these modules is given in the Annex 3.

1. The Service Lift Standard's modules are a mix of theoretical and practical elements focusing on developing the needed knowledge, skills, and abilities for a wind employee to operate, commission, inspect, install, maintain, and evacuate a lift in a WTG.
2. The Service Lift Standard's modules have a generic focus in relation to different lift types and systems. It is the training participants' responsibility to follow guidance in specific relevant manuals is emphasised as a basic part of the learning objectives in these modules.

COURSE OBJECTIVE

Training in accordance with the GWO Service Lift Training Standard is aimed at the safe and correct use of a lift within a WTG.

The Service Lift User Module training is aimed at users of lifts in the wind industry.

The Service Lift Inspection and Maintenance Module training is aimed at ensuring the readiness of a lift in a WTG. This is achieved by; first, inspecting and maintaining the lift plant by initial inspections for the purpose of commissioning the lift; secondly, required general inspections; and finally, inspections after replacement of main components.

The Service Lift Installation, Inspection and Repair Module is aimed at performing installation and repair, commissioning, inspection, and maintenance work on a lift in a WTG.

These aims are fulfilled when the participants possess the required knowledge, skills, and abilities to conduct assigned tasks and operations in a lift safely and efficiently.

COURSE CONTENT

The Lift Standard contains the three modules:

GWO LIFT	MODULES
MODULE 1	SERVICE LIFT USER
MODULE 2	SERVICE LIFT INSPECTION AND MAINTENANCE
MODULE 3	SERVICE LIFT INSTALLATION, INSPECTION AND REPAIR

PREREQUISITES

In order to complete a GWO Service Lift course, participants shall be:

- WINDA registered before arriving for the course
- Medically fit and capable of fully participating.

COURSE VALIDITY

Enduring qualification, validity period does not apply.

Annex 2

OVERVIEW OF TRAINING COURSES

GWO ADVANCED RESCUE TRAINING

COURSE OVERVIEW

The GWO Advanced Rescue Training Standard elevates the self-reliance of wind personnel and provides the skills and knowledge to successfully transport a colleague who cannot self-evacuate to an assembly point until professional emergency responders arrive.

The training is based on risk assessments and factual incident and accident statistics pertaining to the installation, service and maintenance of wind turbine generators and wind power plants.

GWO ART aims to control the risks associated with rescue operations conducted in and from wind turbines to ensure more efficiency in the industry.

This training is the GWO ART Combined which includes all four modules covering rescue and single rescuer in the hub, spinner, inside blades, nacelle, tower and basement sections of a wind turbine. Duration and validity for these modules is given in the Annex 3.

COURSE OBJECTIVE

Participants completing a GWO Advanced Rescue Training Combined course will be able to;

- Safely access the hub, spinner, inside blade, nacelle, tower and basement section of a wind turbine to get to an injured person
- Perform entry-type casualty rescue operations in a wind turbine generator
- Correctly use industry standards rescue equipment and methods
- Understand and demonstrate rescue techniques that exceed those of GWO Working at Height

COURSE CONTENT

A GWO Advanced Rescue Training (ART) Combined course includes the following four modules:

GWO RESCUE TRAINING

MODULES

MODULE 1

HUB, SPINNER AND INSIDE BLADE RESCUE

MODULE 2

NACELLE, TOWER AND BASEMENT RESCUE

MODULE 3

SINGLE RESCUER: HUB, SPINNER AND INSIDE BLADE RESCUE

MODULE 4

SINGLE RESCUER: NACELLE, TOWER AND BASEMENT RESCUE

PREREQUISITES

In order to complete a GWO Advanced Rescue Training Combined course, participants must:

- Hold valid and in-date GWO Working at Height, GWO First Aid and GWO Manual Handling training records
- Be WINDA registered before arriving for the course and medically fit and capable of fully participating.

COURSE VALIDITY

The validity period is 24 months .

Annex 2

OVERVIEW OF TRAINING COURSES

GWO CRANE AND HOIST

COURSE OVERVIEW

The aim of this training is to ensure that the wind industry personal can safely operate common types of fixed cranes and hoist in the wind industry up to a load moment of 8 Tm (metric ton metres). This course follows on from manufacturers and other relevant manuals. Duration and validity for these modules is given in the Annex 3

COURSE OBJECTIVE

Training in accordance with this standard will enable wind industry personal to safely operate, inspect and maintain common types of fixed, small cranes and hoists in the wind industry by following manufactures manuals, documentation, and relevant legislation.

COURSE CONTENT

A GWO Crane and Hoist package includes:

GWO CRANE AND HOIST

MODULES

MODULE 1

GWO CRANE AND HOIST BASIC USER

MODULE 2

GWO CRANE AND HOIST INSPECTION AND MAINTENANCE

PREREQUISITES

In order to complete a GWO Slinger Signaller course, participants shall be:

- WINDA registered before arriving for the course
- Medically fit and capable of fully participating.

COURSE VALIDITY

Enduring qualification, validity period does not apply .

Annex 2

OVERVIEW OF TRAINING COURSES

GWO ENHANCED FIRST AID

COURSE OVERVIEW

The GWO Enhanced First Aid standard training aims to prepare participants to support and care for others working in the industry by possessing the knowledge, skills, and ability of enhanced first aid. Upon completion of the GWO EFA standard training, participants will be able to administer safe, effective, and immediate lifesaving and enhanced first aid measures to save lives and give assistance in remote areas using advanced emergency equipment and medical teleconsultation. Duration and validity for these modules is given in the Annex 3

COURSE OBJECTIVE

The aim of the module is to enable the participants to support and care for others working in the industry and to provide ongoing care to an ill or injured casualty over a short period of time while waiting for professional emergency rescue teams to arrive.

COURSE CONTENT

A GWO Enhanced First Aid includes training on risks and hazards, anatomy and physiology, management of an incident, lifesaving and enhanced first aid, pain management, and scenario-based training.

PREREQUISITES

In order to complete a GWO Enhanced First Aid course, participants shall be:

- WINDA registered before arriving for the course
- Medically fit and capable of fully participating.

COURSE VALIDITY

The validity period is 24 months

Annex 3

STANDARDS & MODULES, DURATION & VALIDITY

BASIC SAFETY TRAINING (VERSION 19)

MODULES	INITIAL DURATION	VALIDITY (MONTHS)	REFRESHER DURATION
First Aid	7 hours	24	4 hours 00 minutes
Manual Handling	3 hours 45 minutes	24	3 hours 35 minutes
Fire Awareness	3 hours 20 minutes	24	3 hours 20 minutes
Working at Heights	14 hours 15 minutes	24	8 hours 00 minutes
Sea Survival	6 hours 35 minutes	24	8 hours 00 minutes
Working at Heights & Manual Handling Combined	15 hours 25 minutes	24	6 hours 30 minutes

BASIC TECHNICAL TRAINING (VERSION 10)

Basic Technical Training Standard is an enduring training with no validity period limitation.

MODULES	INITIAL DURATION
Mechanical	10 hours 30 minutes
Electrical	10 hours 5 minutes
Hydraulic	9 hours 15 minutes
Bolt Tightening	9 hours 0 minutes
Installation	17 hours 45 minutes

ADVANCED RESCUE TRAINING (VERSION 5)

MODULES	DURATION	VALIDITY (MONTHS)	REFRESHER DURATION
Hub, Spinner and Inside Blade Rescue	7 hours 30 minutes	24	As per ART
Nacelle, Tower, and Basement Rescue	14 hours 25 minutes	24	14 hours
Single Rescuer: Hub, Spinner and Inside Blade Rescue	4 hours 30 minutes	No Expiry	
Single Rescuer: Nacelle, Tower and Basement Rescue	4 hours 30 minutes	No Expiry	

Annex 3

STANDARDS & MODULES, DURATION & VALIDITY

CONTROL OF HAZARDOUS ENERGIES (VERSION 4)

MODULES	INITIAL DURATION	VALIDITY (MONTHS)	REFRESHER DURATION
CoHE Basic Safety Module	4 hours and 10 minutes	24	1 hour 10 minutes
CoHE Electrical Safety Module	10 hours and 45 minutes	24	4 hours
CoHE Pressure Fluid Safety Module	7 hours	24	2 hours 20 minutes

SLINGER SIGNALLER (VERSION 4)

Slinger Signaller Standard is an enduring training with no validity period limitation.

COURSE	DURATION
Slinger Signaller	13 hours 40 mins

SERVICE LIFT (VERSION 5)

The Lift Training Standard is an enduring training with no validity period limitation

MODULES	DURATION
Service Lift User Module	4 hours 20 minutes
Service Lift Inspection and Maintenance Module	7 hours
Service Lift Installation, Inspection and Repair Module	14 hours

ENHANCED FIRST AID (VERSION 5)

MODULES	DURATION	VALIDITY (MONTHS)	REFRESHER DURATION
Enhanced First Aid	21 hours 0 mins	24	14 hours 0 mins

CRANE AND HOIST (VERSION 2)

The Crane and Hoist Standard is an enduring training with no validity period limitation

COURSE	DURATION
Crane and Hoist Basic User	13 hours 10 mins
Crane and Hoist Installation and Maintenance	12 hours 30 mins



**Access
the Guideline
Infographic on
ABEEólica's website.**

