



GLOBAL WIND ORGANISATION

Basic Safety Training (BST)
(Onshore/Offshore)

Version 12

1 April 2019



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LIST OF ABBREVIATIONS

ANSI	American National Standards Institute
AS/NZS	Australia and New Zealand Standard
BST	Basic Safety Training
BWH	Basic Working at Height
CO ₂	Carbon Dioxide
CSA	Canadian Standards Association
EN	European Standards
EPIRB	Emergency Position Indicating Radio Beacon
ERC	European Resuscitation Council
GWO	Global Wind Organisation
GMDSS	Global Maritime Distress and Safety System
H.E.L.P.	Heat Escape Lessening Posture
ILCOR	International Liaison Committee on Resuscitation
LSA	Life Saving Appliances
PLB	Personal Locating Beacon
PPE	Personal Protective Equipment
MES	Marine Evacuation Systems
MOB	Man Over Board
SAR	Search and Rescue
SART	Search and Rescue Transponder
SRL	Self-Retractable Lifeline
T.I.L.E.	Task Individual Load Environment
WTG	Wind Turbine Generator



CHANGE LOG

Amendments & Dates	Version	Changes	Approved by & Dates
April 1 2019	12	First Aid: <ul style="list-style-type: none"> - Staff: Added following: First Aid Instructors need to be certified First Aid Instructors according to national legislation and/or recommended guidelines - Lesson 2: Added ref. to International Liaison Committee on Resuscitation (ILCOR) - Lesson 3: Anatomy section simplified e.g. element 3.1 d. vital organs and their requirements, 3.4 removed, 3.5 Personal Hygiene change to Personal Protective Equipment and moved to lesson 4.1 - Lesson 5: C-ABC – adding C for catastrophic/critical bleeding - Lesson 5: Lifesaving First Aid using Primary Survey "C" - A - B – C – added 50 min from AED - Removal of CPR on children - Lesson 6: AED – no longer a separate lesson but integrated in lesson 5. 	GWO TC 20.03.19



		<ul style="list-style-type: none"> - Lesson 7 - Ordinary First Aid: Changed to secondary survey and increased with 50 min from the previous AED lesson. - Traffic related accidents include in lesson: 7.1.4 – the scenario-based training <p>Fire Awareness</p> <ul style="list-style-type: none"> - Personal escape masks <ul style="list-style-type: none"> o Now optional in the equipment list o Also part of the theory in lesson 4 - Square of combustion <p>Changed to triangle</p>	
February 5 2019	12	<p>Sea Survival amendments</p> <p><u>Lesson 7 and 9:</u></p> <p>Element 7.2.3.1 and Element 9.2.6 – 9.2.22 added to specify requirements on transfer procedure between vessel and WTG, according to <i>G+ Offshore Wind Health and Safety Association, Good Practice Guideline: Working at height at the offshore wind industry</i> section “4.4 Transfer By Stepping Over Between Vessels And Offshore Structures”</p> <p><u>Section 1.7:</u></p>	GWO TC 20.03.19



		"(1)" and "(2)" reference reviewed to current sections	
September 10 2018	11	<p>Sea Survival review</p> <p><u>Duration change</u></p> <ul style="list-style-type: none"> - Course reduced from 1½ day duration to 1 <p>Primarily by moving theory elements into the practical elements.</p> <p><u>Overall changes</u></p> <p>Elements moved and integrated</p> <ul style="list-style-type: none"> - Element 8.1/8.2 moved to Lesson 5 - Element 9.1,9.2,9.3,9.4,9.5,9.6 and 3.1,3.2,3.3,4.1 and 8.2 moved to Lesson 6 - Element 5.1,5.2,5.3,5.4,5.5 moved to Lesson 7 - Element 6.1 moved to Lesson 8 - Element 10.1,10.2,10.3 - 5.3,5.4,5.5 and 7.1 into Lesson 9 <p><u>Element specific changes</u></p> <ul style="list-style-type: none"> - Updated: Added new introduction Lesson, aligning with latest developed standards - Updated: 1.1, added referral to G+ guidelines alignment - Updated: 1.1, Aims & Objectives wording 	Approved by GWO SC on September 20, 2018



		<ul style="list-style-type: none"> - Updated: 1.2, duration section to 2x4 hours - Updated: 1.3, Trainer – Delegate Ratio, practical to 1:4 - Updated: 1.5, time table to reflect the 1-day duration setup - Updated: Lesson 3, Learning objectives. Drowning content was changed from “demonstrate” to “explain” to reflect the theory perspective of the lesson - Updated: Lesson 3, Learning objectives. Hypothermia level changed from “various steps” to “symptoms” due to details being covered in first aid - Updated: 3.4, drowning. Changed from “Explain” and “demonstrate”, to “explain” due to the topic being covered in first aid - Updated: 4.1.3, added “Correct pre-use check” based on survey feedback - Updated: 5.1, the instructor must now only “explain” and not “demonstrate”. Furthermore, it is now SAR operation and not organisation - Updated: 6.1.2, added “immersion and transfer suits” to clarify - Updated: 6.2.1, added “Including different types of 	
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		<p>evacuation, by use of equipment or manual evacuation" to make it more precise</p> <ul style="list-style-type: none"> - Updated: 6.2, sequence - Updated: 6.2, changed "safe" to "controlled" - Updated: 6.2, first aid elements removing "various" to make it more precise - Updated: 6.2.10, from "safe" to "controlled" - Updated: 6.3.1.5, added "Covering risks of panic, bodily malfunction, accessibility...." To help the instructors during the lesson - Updated: 6.4.6, removed "various" to make it more precise - Updated: 6.4.12, removed "stages" to simplify it - Updated: 6.6.1, added "delegates understand that they are to demonstrate the skills covered in Lesson 6 practical sea survival" to ensure motivation for the exercise - Updated: 6.6.2, "safe" removed, "controlled" added - Updated: Lesson 7, Aims and Objectives. "Dynamic-dynamic" added to reflect that all principle types of transfer are covered - Updated: 7.2.1, dynamic – dynamic added 	
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		<ul style="list-style-type: none"> - Updated: 7.2.2.2, added "Various types of vessels the delegate may engage in a Sea Survival Situation" due to the different operational footprint of the vessels when conducting Sea Survival - Updated: 7.2.3.1 and 7.2.3.2, reversed the safe transfer methods to reflect the safety priorities - Updated: 7.2.4.1/2, updated the sequence to reflect operational pattern - Updated: 8.2.2, added different types of contingency plans to make it more precise - Updated: 9.1.2, "Storage" is added to reflect that equipment/cargo is to be handled specifically - Updated: 9.2.1, added different types of hazards - Updated: 9.2.2, Updated the exercises to include SRL with and without quick connector - Updated: 9.2.4, Added "with/without quick connector" and specified that each exercise must be conducted twice by each delegate - Updated: 9.2.5, added "The ability to react to instructions and hazards during the transfers" 	
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		<ul style="list-style-type: none">- Updated: 9.3.2, added "Assisted recovery from water in cooperation between casualty and rescuer by means of cradle and rescue net" to emphasize that both approaches must be covered- Updated: 2.2, removed 2.2.2 and 2.2.3 due to potentially having 12 different nationalities on the course- Updated: 1.7, changed the numbering of the control step elements to reflect the updated sequence in the Sea Survival module- Removed: Lesson 6, Aim & Objectives "Demonstrate the various techniques to enhance the individual and collective chances of survival and evacuation", as this is covered in the other aims & objectives- Removed: 6.5, Delegates shall demonstrate Helicopter rescue from water as demonstrated by staff" as it is deemed sufficient that the delegates observe the instructors "explaining" and "demonstrating" it- Removed: Lesson 9, referral to G9 as this is now under the overall Aims & Objectives section	
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		<ul style="list-style-type: none"> - Removed: 9.2.2, "moving equipment with Twin fall arrest lanyards" as this is impossible <p><u>Taxonomy update</u></p> <ul style="list-style-type: none"> - Update of the taxonomy methodology to improve consistence and quality, including: update of Aims and objectives section, alignment between aims & objectives and the learning objectives, update of element taxonomy 	
May 31 2017	10	<p><u>Content</u></p> <ul style="list-style-type: none"> - New intro "Scope" replaces "Foreword and Editorial" - General section: Target group detailed to "personnel working in a wind turbine environment" - General: new section on "Understanding GWO Learning Objectives" incl. Taxonomy Table - General: new section on Conformity with other training section added, allowing certified training providers to incorporate delivery of other certified training. - First Aid module: specified at least one scenario must 	Approved by GWO SC on April 27



		<p>be based on electrical incident, diabetes deleted as first aid situation</p> <ul style="list-style-type: none"> - Manual Handling: may now be delivered as combined MH and MHR course, increased discussion based learning, introduced aggravating factors in theoretical lessons, specified scenario-based training. - Added annex 3: Manual handling risk assessment (aggravating factors) - FAW module: may now be delivered as combined FAW and FAWR course, increased discussion based learning, specified scenario-based training. Technical term fire gases implemented (instead of smoke), instruction in dry chemical extinguisher specified (reduced) to taxonomy level "explain" - WaH module: anchor point specified to minimum 6.75 meters, always ensuring that safe distance is available for fall arrester to work. <p><u>Major layout work:</u></p> <p>All common administrative elements now only in general sections of standard, and deleted</p>	
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		<p>from each of the module descriptions.</p> <ul style="list-style-type: none">- Templates for Control Measures and Medical Self-assessment forms supplied as annex 1+2 supplied- Specific requirements to trainer/delegate ratio, equipment and performance criteria remain in modules- Module learning outcomes and lesson elements merged into "detailed description".	
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	9	<p>General</p> <p>Individual module update versions on front page of standard removed.</p> <p>Delegate prerequisites</p> <p>Added prerequisite for Delegate to possess a personal WINDA ID and provide it to the Training Provider prior to completing the course.</p> <p>All sections</p> <p>Changed certification requirement from issuing a certificate to instead upload a record of training to WINDA.</p> <p>Changed requirement from handing out certificates to Delegates to instead ensure that Delegates have provided their WINDA ID.</p> <p>Validity Period</p> <p>Changed text to include uploading of records to WINDA</p> <p>Entire document</p> <p>Switched logo to new GWO logo</p> <p>Left the date field in the medical self-check forms blank.</p>	
.03.2016	8	<p>Introduction</p> <p>Updated the requirements for renewal of certificate.</p> <p>First Aid Module</p>	<p>GWO SC</p> <p>15.03.2016</p>



		Corrected numerical error in point 3.3	
01.12.2015	7	<p>Introduction</p> <ul style="list-style-type: none"> Removed certification requirement 3 "Type of equipment used in the course and maximum training height (BST Working at Heights Module only)" in Working at Heights module. Removed due to RUK alignment. Consequence of expired certificates added under Validity period. <p>Working at Heights Module</p> <ul style="list-style-type: none"> Removed certification requirement 4 from point 3.3 "Type of equipment used in course and maximum training height". Removed due to RUK alignment. Removed part of the note in point 3.3 WaH module saying "However, a climb to a higher height than the minimum height stated in this Standard can be an indicator of the Delegate's capability and aptitude to work at heights. The maximum height used during the training must be stated on the certificate". Removed due to RUK alignment. <p>Sea Survival Module</p>	



		<ul style="list-style-type: none"> • Alignment with updated requirements set by UK Health and Safety Executive for boat transfers: <ul style="list-style-type: none"> ○ Section 1.5: Objective (3) added ○ Section 1.6: Lesson 3, Lesson 4, Lesson 5, Lesson 9 and Lesson 10 altered ○ Section 1.9: Element 3.2, Element 4.1 and Element 4.2, Element 5.1, Element 9.2, Element 9.3, Element 10.1, Element 10.2 altered • MES (Marine Evacuation system) added to List of abbreviations • Removal of Safe Transfer from Vessel to Vessel exercise due to too high risk while practicing (current objective 4 altered and previous Element 5.6 and 10.3 deleted) • Validity reduced to 24 months (Section 3.2) • Equipment for easy detachment added (Section 2.6) 	
12.03.2014	6	<ul style="list-style-type: none"> • Appendix and Change Log • Appendix removed. Change Log moved from the end to the 	GWO SC 27-03-2014



		<p>beginning of this document after the title page.</p> <p>Working at Heights Module</p> <ul style="list-style-type: none"> 1.1: Length of Working at Heights course corrected from 8 hours to 16 hours. 1.6: Lesson 1 Introduction. The word "Refresher" removed. 2.6: Equipment. The version years are removed from the safety/equipment standards. The reason for this is that there are many standards that are frequently updated. Updating all of these standards with their new versions will require lots of work. If no years are mentioned, the newest version of the equipment standard will always prevail. <p>Entire GWO Basic Safety Training Standard Document (All Modules)</p> <ul style="list-style-type: none"> Small corrections to spelling, grammar, styles and tables (no meanings of sentences have been changed) 	
21.11.2013	5	<p>Entire GWO Basic Safety Training Standard Document (All Modules)</p> <ul style="list-style-type: none"> Delegate prerequisites corrected for each Module (Section 1.3) Physical demands corrected for each Module (Section 1.4) 	



04.11.2013	4	<p>Entire GWO Basic Safety Training Standard Document (All Modules)</p> <ul style="list-style-type: none"> • Spelling, grammar corrected (no meanings of sentences have been changed), format corrected • Delegate prerequisites updated for each Module (Section 1.3) • Physical Demands updated for each Module (Section 1.4) • Added Appendix 1A to each Module (GWO's suggestion for Medical Self-Assessment) <p>Working at Heights Module</p> <ul style="list-style-type: none"> • Information about Certification (EN, ANSI, etc.) has been added for equipment list for module (Section 2.3, p. 144) 	
17.06.2013	3	<p>Entire GWO Basic Safety Training Standard Document</p> <ul style="list-style-type: none"> • Draft of Version 3 finalised • All sections updated with current information • Small changes in document layout, writing corrections included 	
22.01.2013	2	<p>Entire GWO Standard Document</p> <ul style="list-style-type: none"> • Date of birth removed from GWO course certificates 	



		<ul style="list-style-type: none"> • Change log is now in an Appendix at the end of the GWO Standard document • Change in requirements for medical certificates for GWO courses. Now, with exception of Sea Survival, Delegates may participate in a course as long as they present a physician's medical certificate prior to the end of the course • Change in document layout and some language, grammar, spelling and writing corrections 	
15.07.2012	1	<p>Module First Aid</p> <ul style="list-style-type: none"> • 1.7 Delegate performance assessment <p>The section has been rewritten</p> <ul style="list-style-type: none"> • Element 1.6: Motivation: <p>The Chain survival changes to Chain of survival</p> <ul style="list-style-type: none"> • Timetable, BST Module First Aid <p>The total time is 790 min. and is changed to 800 min. 10 min. are added to scenario-based training</p> <ul style="list-style-type: none"> • 1.7 Delegate performance assessment <p>The section has been rewritten</p> <ul style="list-style-type: none"> • 8.13 First Aid scenarios <p>Added V Electricity accidents minor/serious.</p>	GWO SC 30-07-2012



		<ul style="list-style-type: none"> Control Measures have been corrected Records <p>Added min. 5 years</p>	
15.07.2012	1	<p>Module Manual Handling</p> <ul style="list-style-type: none"> Records <p>It has been added min. 5 years</p>	GWO SC 30-07-2012
15.07.2012	1	<p>Module Fire Awareness</p> <ul style="list-style-type: none"> 1.8 Timetable <p>10 min. have been added to practise and scenario-based training. Total time is now 210 min.</p> <ul style="list-style-type: none"> Control Measures have been corrected Records <p>Added min. 5 years</p>	GWO SC 30-07-2012
15.07.2012	1	<p>Module Working at Heights</p> <ul style="list-style-type: none"> 1.7 Delegate performance assessment <p>The section has been rewritten</p> <ul style="list-style-type: none"> Equipment <p>Harness according to EN361/358 or EN 813/361/358 Slings EN566 according to minimum 795-B Anchor points according to EN795A</p>	GWO SC 30-07-2012



		<ul style="list-style-type: none"> Records <p>Added min. 5 years</p> <p>Karabiner EN362 has to have an automatic locking system</p> <ul style="list-style-type: none"> Control Measures have been corrected 	
15.07.2012	1	<p>Module Sea Survival</p> <ul style="list-style-type: none"> 1.7 Delegate performance assessment <p>The section has been rewritten</p> <ul style="list-style-type: none"> Records <p>Added min. 5 years</p> <ul style="list-style-type: none"> Control Measures have been corrected 	GWO SC 30-07-2012



SCOPE

The Global Wind Organisation (GWO) is an association of Wind Turbine owners and manufacturers with the aim of supporting an injury-free work environment in the wind industry. An objective of GWO is to develop common industry training and best practice Standards for health and safety as a vital and necessary way forward to reduce risks for personnel in the wind industry working on site and to reducing environmental risks across Europe and the globe.

This Standard has been developed in response to the demand for recognizable Basic Safety Training (BST) in the industry, and has been prepared in co-operation between the members of GWO 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.

This Standard describes the requirements for **Basic Safety Training** courses that are recommended by the members of GWO. The full standard covers 5 modules:

- First Aid
- Manual Handling
- Fire Awareness
- Working at Height
- Sea Survival

The members of the Global Wind Organisation (GWO) recognize trained persons as competent within Basic Safety in the wind industry and accept the trained person as possessing the required knowledge to stop an unsafe work situation where they as duty-holders are accountable for safety. Training is verified through the GWO database WINDA.

Where national legislation sets higher requirements for the specific training, the Training Provider shall incorporate these requirements into the training program.

Additional training may be required for company or country specific reasons.

This standard has been developed by the GWO Training Committee. Disputes and potential non-conformities should be brought to the attention of the GWO Audit and Compliance Committee.

The standard has been approved by the GWO Steering Committee.



GENERAL REQUIREMENT TO GWO BASIC SAFETY TRAINING

Upon completion of the Global Wind Organisation (GWO) Basic Safety Training (BST) Delegates will possess an awareness of the hazards encountered when working within the wind industry and how to control and mitigate these hazards.

The BST will also equip participants with the knowledge, skills and confidence to appropriately respond in the event of an emergency and to increase their safety through proper use of Personal Protective Equipment, emergency equipment and procedures.

The approved GWO Basic Safety Training (BST) provides Delegates with important skills, which include Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable Delegates to work in the offshore environment, an additional GWO Sea Survival training shall be completed.

Overview

The GWO Basic Safety Training is divided into the following five Modules:

- First Aid
- Manual Handling
- Fire Awareness
- Working at Heights
- Sea Survival

Target group

Personnel who will be working in the wind industry or related fields, and will have their duties in a wind turbine environment, usually in physical contact with a wind turbine or an offshore wind structure.

Personnel that performs job functions that has been risk assessed by their employer or their workplace duty holder as a function, where training according to one or more modules of the BST standard may mitigate of the identified risks.

Aims and objectives

This BST Training shall enable Delegates to support and care for themselves and others working in the industry by possessing the knowledge and skills of First Aid, Working at Heights, Manual Handling, Fire Awareness, Sea Survival and in case of an emergency, to be able to evacuate, rescue and provide appropriate First Aid to Casualties.

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Conformity with other Training

The GWO BST standard sets out minimum requirements.

The modules, learning objectives, lessons and elements may be delivered in the order that fits best for the specific training situation.

Provided the minimum requirements of the BST are met the Training Provider may choose to incorporate delivery of other similar certified training.

Legal requirements

The Training Provider shall identify whether national legislation sets additional requirements for Basic Safety Training, or prohibits delivery of certain elements.

If so, the Training Provider shall incorporate these identified requirements in the training.

Duration of BST Modules

Modules	Duration
First Aid	16 hours
Manual Handling	4 hours
Fire Awareness	4 hours
Working at Heights	16 hours
Sea Survival	8 hours

Within the module timetables, approximate duration of each of the lessons are given. The training provider may choose to deliver elements of the training according to other timetables, as long as the total duration is not reduced, and practical elements are not reduced in length. Theoretical elements may be delivered during the practical exercises when feasible.

Validity period

The Basic Safety Training Modules are valid for the period stated in the table below. Certificates and training records shall be renewed before the end of a given validity period. A certificate or training record can be renewed up to two months prior to expiry and maintain the original certification date by uploading the previous certificate's valid until date in WINDA.



If a certificate or training record is renewed outside of two months of expiry, it must carry the new date of certification.

A Delegate is only allowed to attend a refresher course in the specific Training Module prior to the date of expiry on the current certificate or training records.

If a certificate or training record is expired, the Delegate must attend the full Basic Safety Training Module(s) to obtain a new training record.

The validity period is automatically calculated in WINDA by entering the course completion date.

Course/Modules	Certificate Validity (Months)
First Aid	24
Manual Handling	24
Fire Awareness	24
Working at Heights	24
Sea Survival	24

Delegate prerequisites for the BST

All personnel participating in Basic Safety Training shall be medically fit and capable of fully participating.

Training providers shall have a procedure that requires Delegates to sign a statement stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under influence of any narcotic substance or alcohol. The Annex 2: Medical Self-Assessment Form shall be used if no other equivalent procedure is in place.

Delegates' signatures testifying to their medical fitness shall be collected prior to the start of the basic safety training course.

Furthermore, Delegates shall have created a personal Delegate profile in WINDA and provide their own WINDA ID prior to completing the BST training.



Physical demands

BST Modules may potentially be physically demanding.

If there is any doubt regarding the medical fitness of any Delegate, the Training Provider shall stop training the Delegate and seek a physician's advice.

Note: Practical exercises shall be designed and delivered solely to meet this Standard and shall not place any physical or mental demands on the Delegates other than those required to meet this Standard.

GENERAL RESOURCES REQUIRED TO DELIVER BST MODULES

The Training Provider shall ensure that Staff, facilities and equipment are in place to support the training of Delegates.

Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation e.g. First Aid Instructors need to be certified First Aid Instructors according to national legislation and/or recommended guidelines.

Training Staff shall be:

- Trained in instructional/ lecture techniques and/ or have documented instructional/ teaching experience.
- Included in an on-going training programme, which includes visits to onshore and/ or offshore WTGs (tower, nacelle, hub) prior to instructing BST Modules, to enable them to maintain and update skills related to the BST Modules they instruct. Training Staff shall physically visit the tower, nacelle and hub of WTGs.

A person with First Aid qualifications shall be present during all practical training.

All Staff shall possess the appropriate competencies to conduct/ assist the elements of training they have been assigned to.

Facilities and Equipment

The full range of facilities and equipment relevant to the modules delivered shall be available during the training. The following facilities criteria shall be adhered to.



Theory training facilities

Facilities shall be designed to enable each Delegate to see, hear and fully participate in the taught subject matter.

Practical training facilities

All facilities shall be maintained and where appropriate, inspected and tested in accordance with current national legislation and manufacturers' recommendations.

Risk assessments shall be conducted and documented for all training facilities. The Training Provider shall hold the required permits to operate the facilities.

The learning process is facilitated by identical or comparable elements comparing the training environment and the delegates' working environment. Identical or comparable elements enhances the application of what is learned.

The practical training facilities and a training environment are expected to incorporate as many identical or comparable elements to a real wind turbine working environment as possible.

The objective is that the practical training facility should enable each Delegate to individually and/or as part of a team, see, hear and practice the taught subject matter in such a way, that it resembles the working practices in a real wind turbine environment.

The facilities shall enable training to be executed by doing relevant work tasks end-to-end under realistic simulated working procedures, and/or realistic simulated emergency situations (fire, first aid, evacuation or casualty rescue) end-to-end scenarios in a real or simulated wind turbine environment.

Training Equipment

The required equipment for training shall be available and shall fulfil national legal requirements.

The equipment shall be maintained, inspected and tested in accordance with current national legislation and manufacturers' recommendations. Risk assessments shall be conducted and documented for all training equipment. The Training Provider shall hold the required permits to operate relevant equipment.



UNDERSTAND GWO LEARNING OBJECTIVES

The described learning objectives (expected learning outcome) are the foundation of the course contents and what the delegate performance assessment must be based upon.

Traditionally learning objectives are prepared within three different domains of learning – knowledge, skills and attitude. A learning objective describes the expected learning outcome on completion of a module or a course, within one or more learning domains.

If a learning objective is related to more than one domain of learning, e.g. to knowledge *and* skills, one learning objective per learning domain is often prepared – to enable a better understanding of the learning objective.

The GWO Training Provider may apply teaching methods (didactics) that are appropriate to the course participants prior training, education and cultural backgrounds, but should always aim to provide course participants ample possibility to perform hands-on demonstrations and learning reflection.

Taxonomy

To formulate a measurable learning objective, taxonomy is used to describe the *level* of expected learning outcome within a learning domain.

As an example belonging to the learning domain of knowledge, to have a delegate *name* or **recognize** something, as oppose to have him **explain** it in his own words, or even *apply* or **demonstrate** what he has learned – describes different performance levels, i.e. different taxonomy levels.

Different taxonomies are associated with different learning domains, for instance:

Knowledge: such as Bloom's "cognitive taxonomy"

- Intellectual knowledge, mental skills and procedures

Skills: such as Simpson's "psychomotor taxonomy"

- Physical skills, cognitive controlled and observable

Attitude: such as Krathwohl's "affective taxonomy"

- Attitude and feelings to the learning

Selecting a suitable taxonomy level, an **action verb** expresses the expected behavior of the delegate, thus describing the taxonomy level of a learning objective.



Action verbs are usually highlighted in bold in this standard. The table below presents the three learning domains with taxonomy level 1-3, provided with associated *action verbs* applicable in the learning objective wording, defining the taxonomy level. In the Basic Safety Training standard, the learning objectives are in general described as level 2 or 3.

Knowledge	Skills	Attitude
3 <u>Application / Applying</u> To use in a new situation. Solving problems by applying acquired knowledge, facts, techniques and rules in a different way. Applying a procedure to a familiar or unfamiliar task. Using a manual to calculate and operate. Action verbs: Apply, Change, Choose, Compute, Demonstrate, Modify, Operate, Practice, Prepare, Schedule, Solve, Write.	<u>Guided response</u> Follows instructions to build a model. Using a tool after observing an expert demonstrate how to use it. Be able to demonstrate an activity to other learners. Can complete the steps involved in the procedure as directed. Action verbs: Accomplish, Achieve, Calibrate, Complete, Control, Demonstrate, Perform, Refine, Show.	<u>Value</u> Demonstrates belief in the company described process. Shows the ability to solve problems. Informs management on matters that one feels strongly about. Decide worth and relevance of ideas and tasks. Action verbs: Argue, Challenge, Confront, Complete, Debate, Criticize, Justify, Join, Propose.
2 <u>Comprehension / Understanding</u> Construct a meaning from instructional messages, including oral, written and graphic communication. Demonstrating basic understanding of facts and ideas. Explain in your own words the steps of performing a complex task.	<u>Set</u> Awareness or knowledge of the ability needed to use the skill. Carry out tasks from verbal or written instructions. Showing eagerness to assemble components to complete a task. Knows and acts upon a sequence of steps in a process.	<u>Respond</u> Completing work assignments with highly respect to the agreement. Participating in team problem solving activities. Questions new ideas and concepts in order to fully understand them. Participate actively and respectful in discussions. Showing enthusiasm.

**Action verbs:**

Classify, Distinguish, Estimate, Explain, Express, Give, Illustrate, Indicate, Locate, Predict, Summarize, Translate.

Action verbs:

Access, Build, Complete, Conduct, Execute, Implement, Operate, Perform, Recreate.

Action verbs:

Assist, Contribute, Discuss, Present, Question, Report, Respond, Tell, Write.

1 Knowledge / Remembering

Memory of facts, terminology, rules, sequences, procedures, etc.

Locating knowledge in long-term memory and retrieving relevant knowledge from long-term memory.

Action verbs:

Arrange, Define, Describe, Find, Identify, List, Name, Outline, Recognize, Relate, Recall, Retrieve.

Perception

Watch instructor and repeat action, process or activity.

Recognizing sounds or pictures that indicate certain functionalities.

Estimate the event of a certain function and be prepared for it.

Action verbs:

Attempt, Copy, Duplicate, Follow, Organize, Repeat, Sketch, Replicate, Reproduce.

Receive

Listening to discussions of controversial issues with an open mind.

Respecting the rights of others.

Listen to others and remember their opinions.

Be positive and creative to what is being taught.

Action verbs:

Ask, Be open to, Concentrate, Discuss, Focus, Follow, Listen, Reply, Take part.

Table: Learning domains with taxonomy level 1-3.

Note: Higher taxonomy levels exist.



ADMINISTRATION AND CERTIFICATION OF BST MODULES

Administrative arrangements

Appropriate for the enrolment and certification of Delegates and all aspects of the delivery of training shall be in accordance with this Standard.

Delegate performance assessment

Delegates shall be assessed according to the learning outcomes by means of direct observation and oral and/or written questions, where appropriate.

Training Providers shall have a documented procedure in place for dealing with Delegates not meeting the stated learning outcomes.

Requirement to upload training record in WINDA

Training Providers are responsible for uploading a record of training to WINDA, the GWO online database of training records. This must be done as soon as possible and no later than 10 working days after completion of the training program.

Each record shall contain the following:

- 1) Delegate's WINDA ID
- 2) Course code
- 3) Course completion date

Course codes:

First Aid:	FA
Manual Handling:	MH
Fire Awareness:	FAW
Working at Heights:	WAH
Sea Survival:	SS

Note: The BST Module Working at Heights does not test a Delegate's fear of heights.



Training Providers own Records and Certificates issue

The Training Provider shall in accordance with the criteria for Training Provider maintain own records of Delegates.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any specific personnel either attending a course and/or performing training of a course by name and nationality.

Training providers may issue other additional proof of training, e.g. as paper certificate or plastic cards. If the training provider chooses to do so, it is recommended (not a requirement) to include the delegate WINDA id.

Control Measures

A Template Control Measures form is provided in Annex. The Training Provider may adapt the Control Measures Form to other media.

The Trainer keeps a Control Measures Form (or adaptation) for each delegate until the completion / evaluation of the BST Module.

The Control Measures Form (or adaption) is a final evaluation tool for the instructors to assess Delegates during practical elements. It allows measurement of the number of violations in regard to safety, competency, or attitude.

It shall be used as a progressive evaluation tool to discuss the performance of a Delegate in guiding them to success and it also serves as supporting documentation if a Delegate passes or fails the Module. If a Delegate fails to meet the demands of the BST module, they shall attend a new BST Module.



BST MODULE 1 - FIRST AID

1.1 Aims and objectives of the BST First Aid Module

The aim of this BST Module is to administer safe and effective First Aid in the wind turbine industry/ WTG environment, in accordance with GWO First Aid training through theoretical and practical training.

The BST First Aid Module shall ensure that:

- 1) The Delegates are able to demonstrate understanding of the importance of carrying out First Aid in a safe and sound manner, in accordance with the legislative requirements of their geographic location and according to the International Liaison Committee on Resuscitation (ILCOR) hereunder the European Resuscitation Council (ERC) and American Heart Association (AHA) guidelines (L2 - Knowledge)
- 2) The Delegates are able to identify and explain normal function, normal signs and symptoms of injuries and illness related to the human body (L1 – Skills & Knowledge)
- 3) The Delegates are able to demonstrate understanding and correct order of management in an emergency situation in a Wind Turbine Generator (WTG) environment (L3 – Skills & Knowledge)
- 4) The Delegates are able to demonstrate correct use of lifesaving First Aid using the Primary Survey “C” -A - B – C including the use of an Automatic External Defibrillator (AED) (L3 - Skills)
- 5) The Delegates are able to demonstrate correct use of the Secondary Survey (L3 - Skills)
- 6) The Delegates are able to demonstrate correct use of Primary and Secondary Survey including the use of First Aid equipment in a First Aid scenario (L3 - Skills)



1.2 Duration of the BST First Aid Module

The optimal total time for completing this BST First Aid Module is estimated to be **16 hours**, including meals and breaks.

This BST training shall focus on the access and egress conditions encountered in wind turbine environments. The practical skills shall be trained and demonstrated in a restricted area of movement and all elements of the course shall be covered by demonstration and practical exercises, where possible.

If this training is part of a program of longer duration, the total contact time per day shall not exceed **8 hours** and the total training day shall not exceed **10 hours**.

The total training day includes contact time, refreshment and meal breaks and travel between training sites, where applicable.

It shall be ensured that everyone is given the opportunity to share their opinions and experiences, where possible. Delegates with prior experience shall be able to share their experiences related to First Aid in a way that is constructive for the entire class.

1.3 First Aid Trainer/Delegate Ratio

- The ratio shown for theory sessions indicates the maximum number of Delegates that can attend the course.
- The ratio shown for practical sessions indicates the maximum number of Delegates to be supervised by one instructor during each activity.

Module	Session	Trainer - Delegate Ratio
BST First Aid Module	Theory	1:12
	Practical	1:6

1.4 Equipment for First Aid Module

The following equipment is required during the entire duration of this BST First Aid Training to meet the needs of the BST First Aid Training Module:

- 1) Torso anatomy dummy
- 2) Airway model



- 3) Resuscitation dummies - adult
- 4) First Aid equipment
- 5) First Aid bag
- 6) Make - up kit for First Aid scenarios
- 7) AED Trainers
- 8) Blankets

The equipment supplied and used by Staff and Delegates shall follow and comply with national legislation and the appropriate guideline standards, e. g.:

Europe - EN	UK - BS
USA - ANSI	Canada - CSA
Australia and New Zealand - AS/NZS	Asia - ANSI / EN

Note: All equipment shall be maintained and where appropriate, inspected and tested in accordance with current national standards/legislation and manufacturers' recommendations.

1.5 First Aid Module Time Table

The order in which the elements of this BST training Module are delivered may vary.

Within the module timetables, approximate duration of each of the lessons are given. The training provider may choose to deliver elements of the training according to other timetables, as long as the total duration is not reduced, and practical elements are not reduced in length. Theoretical elements may be delivered during the practical exercises when feasible.

Lesson		Element	Approximate Duration
1	Introduction	1.1. Safety instructions and emergency procedures 1.2. Facilities	



		1.3 Introduction 1.4 Scope and main learning objectives 1.5 On-going assessment (Control Measures) 1.6 Motivation	
		TOTAL	15 min.
2	Legislation/Risks/Hazards	2.1 Risks and hazards 2.2 First Aid guidelines 2.3 National legislation 2.4 Global legislation	
		TOTAL	25 min.
3	Anatomy	3.1 Life conditions for the human body 3.2 Structure, functions and signs - the human body 3.3 Serious and minor illness - signs symptoms and function 3.4 Use of anatomy and First Aid in emergency situations	
		TOTAL	50 min.
4	Management of an incident	4.1 Safety awareness in an emergency situation 4.2 Management of an incident 4.3 Emergency Rescue Teams	



		TOTAL	50 min.
5	Lifesaving First Aid using primary survey (“C”-A - B - C)	5.1 Primary Survey “C”-A - B - C 5.2 “C” Critical bleeding 5.3 Technical specifications of an AED 5.4 AED safety procedures 5.5 Correct use of an AED 5.6 Unresponsive 5.7 Unresponsive, not breathing 5.8 CPR 5.9 Obstruction of airways 5.10 Bleeding, internal and external 5.11 Shock	
		TOTAL	250 min.
6	Secondary survey	6.1 Secondary survey 6.2 First Aid - different incidents types 6.3 Deterioration of incidents 6.4 Psychological First Aid	
		TOTAL	110 min.
7	Scenario-based training	7.1 Practise First Aid techniques	
		TOTAL	285 min.



8	Evaluation	8.1 Summary 8.2 Evaluation 8.3 Training records	
		TOTAL	15 min.
GRAND TOTAL			800 min.

1.6 Detailed description of the First Aid module

The learning outcomes specified for the First Aid Module are:

Note: The administrative part of the registration should be carried out before the course commences.

Lesson 1: Introduction

15 min.

The aim of this lesson is to give the Delegates the needed awareness of the of the course content and the facilities involved in order to ensure that all Delegates are aware of what to expect and what is expected of them during the course.

To successfully complete this lesson of the BST Module, Delegates shall be aware of:

- 1) Safety instructions and emergency procedures
- 2) Facilities
- 3) Who the instructor and other Delegates are
- 4) Aims and main learning objectives
- 5) On-going assessment according to GWO Control Measures
- 6) Motivation for the course

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

- 1.1.1 Safety instructions according to internal procedures



- 1.1.2 Emergency procedures and emergency exits in the localities the Delegates can be expected to be located during the course

ELEMENT 1.2 Facilities

Training Staff shall **explain:**

- 1.2.1. General description of the facilities on the location (Administration, dining area, restrooms, toilets, etc.)

ELEMENT 1.3 Introduction

Training Staff shall **give:**

- 1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give:**

- 1.3.2 A short introduction, including job function and expected primary geographic work location

Training Staff shall **explain:**

- 1.3.3 The programme of the BST Module, including breaks and meal times

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain:**

- 1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain:**

- 1.5.1 The reasons for the on-going assessment
1.5.2 GWO Control Measures and their use

ELEMENT 1.6 Motivation

Training Staff shall **explain:**

- 1.6.1 The importance of personal involvement in the course
1.6.2 The definition and need for correct First Aid
1.6.3 Chain of survival



Lesson 2: Risks/Hazards/Legislation

25 min.

The aim of this lesson is to give the Delegates the needed awareness and to inform them of the relevant risks/hazards/legislation and demands in order to ensure their knowledge of the roles, responsibilities and rules that apply to First Aid.

To successfully complete this lesson of the BST Module, Delegates shall be able to:

- a. **Explain** risks and hazards relating to First Aid in a WTG environment (L2 – Knowledge, Attitude)
- b. **Summarize** national legislation relevant to First Aid (L2 - Knowledge)
- c. **Explain** different First Aid guidelines – ILCOR e.g. ERC and AHA (L2 - Knowledge)
- d. **Recognise** global legislation - the differences in international regulations between countries relevant to First Aid (L1 - Knowledge)

ELEMENT 2.1 Risk and Hazards

Training Staff shall lead the group discussion on:

- 2.1.2 Risks and hazards involved in an incident relevant for job functions within the wind industry:
 - a. Site organisation and types of units on a site
 - b. Onshore
 - c. Offshore

ELEMENT 2.2 First Aid Guidelines

Training Staff shall **explain**:

- 2.2.1. Different Basic Life Support guidelines e.g. from ERC and AHA.

ELEMENT 2.3 National legislation

Training Staff shall **explain**:

- 2.3.1 Applicable legislation
- 2.3.2 Legislative requirements
- 2.3.3 Legal responsibilities



2.3.4 Role of First Aid in the industry.

ELEMENT 2.4 Global legislation

Training Staff shall **explain**:

- 2.4.1 Differences in national regulations between countries
- 2.4.2 Applicable legislation
- 2.4.3 Legal responsibilities.

Lesson 3: Anatomy

50 min.

The aim of this lesson is to give the Delegates basic knowledge and skills regarding the human body in order to support the primary and secondary survey. Delegates will be able to identify and explain normal function, normal signs and signs, functions and symptoms of injuries and illness related to the human body.

To successfully complete this lesson of the BST Module, Delegates shall be able to **demonstrate**:

- 1) Understanding of life conditions for the human body (Level 2 - Knowledge)
- 2) Knowledge of the structure, functions and signs of the human body (Level 2 - Knowledge)
- 3) Knowledge and skills for detecting abnormal signs, symptoms and functions of injuries (Level 2 - Skills & Knowledge)
- 4) Knowledge and skills for detecting abnormal signs and symptoms of illness related to the human body (Level 2 - Skills & Knowledge)
- 5) Understanding of anatomy and First Aid in emergency situations (Level 2 - Knowledge, Attitude)

ELEMENT 3.1 Life conditions for the human body

Training Staff shall **explain**:

- 3.1.1 Normal life conditions for the human body
 - a. Human cells and life conditions
 - b. Cells and oxygen (O₂)

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- c. Cells and carbon dioxide (CO₂)

ELEMENT 3.2 Structure, functions and signs - the human body

Training Staff shall **explain** and **demonstrate**:

3.2.1 Vital systems of the human body

- a. Nervous system
- b. Respiratory system
- c. Circulatory system
- d. Other systems

3.2.2 Nervous system

- a. Anatomy of the nervous system
- b. Structure, functions and normal signs
- c. Threats to the nervous system

3.2.3 Respiratory system

- a. Anatomy of the respiratory system
- b. Structure, functions and normal signs
- c. Threats to the respiratory system

3.2.4 Circulatory system

- a. Anatomy of the circulatory system
- b. Structure, functions and normal signs
- c. Threats to the circulatory system

3.2.5 Blood filled organs

- a. Placement of kidneys, liver and spleen
- b. Effects of injury of the organs

ELEMENT 3.3 Serious injuries - signs, symptoms and function

Training Staff shall **explain** and **demonstrate**:



- 3.3.1 Serious injuries
- a. Nervous system
 - b. Respiratory system
 - c. Circulatory system
 - d. Other systems

ELEMENT 3.4 Use of Anatomy and First Aid in emergency situations

Training Staff shall **demonstrate**:

- 3.4.1 Assessment of a casualty
- a. From structure, function and symptoms to correct First Aid treatment of a casualty
 - b. Airway - Breathing - Circulation (A - B - C)

Lesson 4: Management of an incident

50 min.

The aim of this lesson is to give the Delegates the needed knowledge and skills to manage an incident in a wind turbine environment.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge and skills for safety awareness and personal protection equipment in an emergency situation (Level 2 - Skills & Knowledge)
- (2) Knowledge and skills to manage an incident (Level 2 - Skills & Knowledge)
- (3) Understanding of support from Emergency Rescue Teams in WTG environments. (Level 2 - Knowledge)

ELEMENT 4.1 Safety awareness and personal protection equipment in an emergency situation

Training Staff shall **explain** and **demonstrate**:

- 4.1.1 Safety in an emergency situation
- a. Appropriate safety behavior and awareness of hazards as a First Aider in a WTG environment
 - b. Safety for all persons involved in an incident

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- a. Personal Protective Equipment against infections; protection and use of barriers in emergency situations
- b. Moving or not moving a casualty

Delegates shall **demonstrate**:

4.1.2 Moving a casualty

- a. Moving a casualty with two First Aiders
- b. Moving a casualty alone

ELEMENT 4.2 Management of an incident

Training Staff shall **explain** and **demonstrate**:

4.2.1 Managing an incident

- a. How to follow an efficient and correct First Aid structure
- b. Analysis and management of an incident
- c. Different emergency situations in the wind industry
- d. Call for help - challenges onshore
- e. Call for help - challenges offshore

Delegates shall **demonstrate**:

4.2.2 Managing an incident

- a. How to follow an efficient and correct First Aid structure
- b. Analysis, assessment and management of an incident
- c. Different emergency situations in the wind industry
- d. Call for help - challenges onshore
- e. Call for help - challenges offshore

ELEMENT 4.3 Emergency Rescue Teams

Training Staff shall **explain**:

4.3.1 Emergency Rescue Teams

- a. Functions of Emergency Rescue Teams

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- b. Co-operation with Emergency Rescue Teams
- c. Challenges for Emergency Rescue Team on site

Lesson 5: Lifesaving First Aid using Primary Survey "C" - A - B - C

250 min.

The aim of this lesson is to give the Delegates the knowledge and skills to follow a methodical sequence to establish techniques so each life-threatening condition can be identified in a priority order and dealt with on a "find and treat" basis in an emergency situation. Delegates will have the knowledge and skills to be able to use an Automatic External Defibrillator (AED).

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- 1) Immediate First Aid actions using Primary Survey "C" - A - B - C (Level 3 - Skills & Knowledge)
- 2) Detection and treatment of a causality with critical bleeding - "C" (Level 3 - Skills. Knowledge & Attitude)
- 3) Correct use of an AED (Level 2 - Skills & Knowledge)
- 4) Correct First Aid to an unresponsive and breathing casualty (Level 2 - Skills & Knowledge)
- 5) Correct First Aid to an unresponsive and not breathing casualty (Level 2 - Skills & Knowledge)
- 6) Knowledge and skills regarding Cardiopulmonary Resuscitation (CPR) (Level 3 - Skills & Knowledge)
- 7) Correct First Aid for obstruction of airways (Level 2 - Skills & Knowledge)
- 8) Correct First Aid for bleeding - external and internal (Level 2 - Skills & Knowledge)
- 9) Correct First Aid for shock (Level 2 - Skills, Knowledge and Attitude)



ELEMENT 5.1 Primary Survey "C"- A - B - C

The Instructor shall **explain**:

5.1.1 The "C"- A-B-C principle

The Instructor shall **demonstrate**:

5.1.2 The procedure of the primary survey

ELEMENT 5.2 - "C" Critical bleeding

The Instructor shall **explain**:

5.2.1 Haemostasis of Critical/Catastrophic external haemorrhage:

5.2.2 Threat and detection of catastrophic bleeding

The Instructor shall **demonstrate**:

5.2.3 Correct treatment of a casualty with catastrophic external haemorrhage including the use of first aid equipment:

- Direct pressure
- Pressure dressings

ELEMENT 5.3 Technical specifications of an AED

Training Staff shall **explain**:

5.3.1 Theory and technical specifications of an AED

ELEMENT 5.4 AED safety procedures

Training Staff shall **explain**:

5.4.1 AED safety procedures

ELEMENT 5.5 Correct use of an AED

Training Staff shall **demonstrate**:

5.5.1 Correct use of an AED

- a. Single First Aider
- b. Two First Aiders

ELEMENT 5.6 Unresponsive

Training Staff shall **explain** and **demonstrate**:

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- 5.6.1 First Aid to an unresponsive casualty
- a. Reasons for being unresponsive
 - b. Threats
 - c. Primary Survey ("C" - A - B - C)
 - d. Recovery position - single First Aider
 - e. Recovery position - two First Aiders
 - f. First Aid equipment

Delegates shall **practice** and **demonstrate**:

- 5.6.2 First Aid to an unresponsive casualty
- a. Threats
 - b. Primary Survey ("C"- A - B - C)
 - c. Recovery position - single First Aider
 - d. Recovery position two First Aiders
 - e. Use of First Aid equipment

ELEMENT 5.7 Unresponsive, not breathing

Training Staff shall **explain** and **demonstrate**:

- 5.7.1 Unresponsive and not breathing
- a. Reasons for being unresponsive and not breathing
 - b. Threats
 - c. Primary Survey ("C" - A - B - C)
 - d. Performing CPR on adults - single First Aider
 - e. Performing CPR on adults - two First Aiders
 - f. Use of First Aid equipment

ELEMENT 5.8 CPR

Delegates shall **practice** and **demonstrate**:



- 5.8.1 Unresponsive and not breathing
- a. Primary Survey ("C"- A - B - C)
 - b. Performing CPR on adults
 - c. Use of first aid equipment

ELEMENT 5.9 Obstruction of airways

Training Staff shall **explain** and **demonstrate**:

- 5.9.1 Obstruction of airways
- a. Reasons for obstruction of airways
 - b. Threats
 - c. Primary Survey ("C"- A - B - C)
 - d. Adults

Delegates shall **practice** and **demonstrate**:

- 5.9.2 First Aid in case of obstruction of airways
- a. Primary Survey ("C"- A - B - C)
 - b. Adults

ELEMENT 5.10 Bleeding, internal and external

Training Staff shall **explain** and **demonstrate**:

- 5.10.1 Bleeding, external
- a. Reasons for external bleeding
 - b. Threats
 - c. Primary Survey ("C"- A - B - C)
 - d. Use of First Aid equipment
 - e. Use of other equipment

Delegates shall **practise** and **demonstrate**:

- 5.10.2 First Aid when a casualty is bleeding externally



- a. Primary Survey ("C"- A - B - C)
- b. Use of First Aid equipment
- c. Use of other equipment

5.10.3 Bleeding, internal

Training Staff shall **explain**:

- a. Reasons for internal bleeding
- b. Threats

Training Staff shall **demonstrate**:

- c. Primary Survey ("C"- A - B - C)
- d. Use of First Aid equipment

Delegates shall **practise** and **demonstrate**:

5.10.4 First Aid when a casualty is bleeding internally

- a. Primary Survey ("C"- A - B - C)
- b. Use of First Aid equipment

ELEMENT 5.11 Shock

Training Staff shall **explain** and **demonstrate**:

5.11.1 Shock

- a. Reasons for shock
- b. Types of shock
- c. Threats
- d. Primary Survey ("C"- A - B - C)
- e. Use of First Aid equipment
- f. Physiological First Aid

Delegates shall **practise** and **demonstrate**:



5.11.2 First Aid to Shock

- a. First Aid Primary Survey ("C"- A - B - C)
- b. Use of First Aid equipment
- c. Physiological First Aid

Lesson 6: Secondary Survey

110 min.

The aim of this lesson is to give the Delegates the knowledge and skills to be able to assess, assist and provide the necessary First Aid to minor incidents.

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- 1) Correct Secondary Survey (L3 - Skills)
- 2) Knowledge and skills for managing different incidents - approach and assessments (L3 - Skills & Knowledge)
- 3) Knowledge and skills regarding psychological First Aid (L3 - Skills, Knowledge & Attitude)

ELEMENT 6.1 Secondary survey

Training Staff shall **explain**:

6.1.1 Correct Secondary Survey

- a. The general conditions of secondary survey using the A-B-C-D-E - principle
- b. The A - B - C - **D** - **E**- principle in the context of the secondary survey:
D: Disability/Neurologic assessment
E: Exposure and environmental control

Training Staff shall **demonstrate**:

- c. The differences between/indications for sitting, lying and shock position (conscious/unconscious) and the importance of keeping up body temperature

ELEMENT 6.2 First Aid - different incidents types

Training Staff shall **demonstrate**:

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6.2.1 Different incidents

- a. Bleeding
- b. Burns
- c. Chemical contacts
- d. Hypothermia
- e. Hyperthermia
- f. Bite wounds
- g. Eye injury
- h. Fractures
- i. Injury to joints, muscles and bones
- j. Rest - Ice - Compression - Elevation (R - I - C - E) method
- k. First Aid equipment for incidents

ELEMENT 6.3 Deterioration of incidents

Training Staff shall **explain**:

6.3.1 Minor to serious incidents

- a. Minor incident escalating to a serious incident
- b. In a WTG environment

ELEMENT 6.4 Psychological First Aid

Training Staff shall **explain**:

6.4.1 Psychological First Aid

- a. Normal reactions to an unusual situation
- b. To a casualty
- c. To the surroundings and next of kin
- d. Reactions after acting as a First Aider



Lesson 7: Scenario-based training

285 min.

The aim of this lesson is to give the Delegates the knowledge and skills to be able to assess, assist and provide the correct First Aid in an incident.

To successfully complete this BST Module, Delegates shall, through different scenarios, be able to demonstrate:

- 1) Managing incidents - approach and assessments (L3 – Skills, Knowledge & Attitude)
- 2) Correctly assessing, assisting and providing the necessary First Aid in an incident (L3 – Skills & Knowledge)
- 3) Correct use of First Aid equipment (L3 – Skills & Knowledge)

ELEMENT 7.1 Practise First Aid techniques

Training Staff shall **explain**:

7.1.1 Safety procedures in the training area

Delegates shall **practise** and **demonstrate**:

7.1.2 Save life - saving First Aid techniques through relevant scenarios according to the Control Measures form

Training Staff shall **ensure** that

7.1.3 following topics are covered during scenario-based training:

- a. Managing incidents
- b. Providing necessary life-saving First Aid
- c. Correct use of First Aid equipment
- d. Knowledge of and skills for AED safety procedures
- e. Correct use of an AED

This scenario-based training shall be conducted as group work with one or more Delegates as First Aiders, while the other Delegates act as Casualty / Casualties or Observer / s. Each Delegate shall, as a minimum, act as First Aider at least one time. Relevant First Aid equipment shall be available and used at all times during scenario-based training.



To ensure all of the above mentioned points are covered during scenario-based training, Training Providers shall combine several of the following First Aid situations mentioned below.

At least one scenario must be based on an electrical incident.

7.1.4 First Aid situations

- a. Dropped object - serious head injury, unresponsive, breathing
- b. Fall from heights - external bleeding, unresponsive, breathing
- c. Serious internal bleeding
- d. Serious external bleeding
- e. Unresponsive with normal breathing
- f. Unresponsive, not breathing
- g. CPR using an AED
- h. Epileptic seizure
- i. Asthma
- j. Stroke (circulatory, respiratory, central nervous system, includes heat stroke)
- k. Serious burn
- l. Hypothermia
- m. Hyperthermia
- n. Crush injury
- o. Eye injury
- p. Electrical accidents minor/serious
- q. Amputation
- r. Minor incident escalating to a serious incident
- s. Traffic related accident



Training Staff shall facilitate **debriefing**:

7.1.5 First Aid situations

- a. Review positive actions observed during exercise
- b. Suggest points for improvement

Training Staff shall facilitate **debriefing**:

7.1.6 Complex incidents with several (2-5) casualties in wind turbine working environments

- a. Review positive actions observed during exercise
- b. Suggest points for improvement

Lesson 8: Evaluation

15 min.

The aim of this lesson is to summarize the Module and give the Delegates the opportunity to do an open-minded review of the training and the instructor.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- a. Active participation in the evaluation

ELEMENT 8.1 Summary

Training Staff shall:

8.1.1 Summarize the Module and give the Delegates final feedback

ELEMENT 8.2 Evaluation

Delegates shall:

8.2.1 Conduct a written evaluation

Training Staff shall:

8.2.2 Give necessary feedback on the written evaluations

ELEMENT 8.3 Training records

Training Staff shall:



8.3.1 Ensure that all Delegates are registered with a personal Delegate profile in WINDA and have provided their WINDA ID to the Training Provider prior to completing the training course.

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

Delegates will be assessed according to the learning outcomes stated in the detailed module description by means of direct observation and supplementary oral questions, where appropriate.

The assessment shall be conducted by practical scenarios based on the WTG environment. Each Delegate shall demonstrate the ability to deal with a casualty that is:

- (1) Unconscious
- (2) Requires CPR
- (3) A scenario as detailed in Lesson 8

The formal evaluation of knowledge of above scenarios shall be in accordance with the Control Measures Form (template provided as Annex 1). The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module. Training Providers shall have a documented procedure in place for dealing with persons not meeting the stated learning outcomes. If a Delegate fails to meet the demands, they shall attend a new BST First Aid Module.



BST MODULE 2 - MANUAL HANDLING

1.1 Aims and objectives of the BST Manual Handling Module

The aim of this Module is to encourage positive Manual Handling behaviour and train delegates ability to perform Manual Handling tasks in a safe manner in the wind turbine industry/environment.

The training shall be designed to improve and refresh Delegates' awareness through both theoretical knowledge and practical training. The main focus shall be on practicing correct techniques.

The BST Manual Handling Module may be delivered at the same time as the BSTR Manual Handling Module.

Training staff should be aware that this module allows first time delegates and refresher delegates in the same classroom. Training should therefore incorporate the sharing of knowledge of the more experienced delegates.

The BST Manual Handling Module shall ensure that:

- (1) The Delegates are able to demonstrate understanding of the importance of carrying out work duties in a safe and sound manner in accordance with the legislative requirements of their geographic work location
- (2) The Delegates are able to identify aspects of their job tasks that could increase their risk of developing muscular/ skeletal injuries
- (3) The Delegates are able to demonstrate understanding of safe practises of Manual Handling, including the correct handling of equipment
- (4) The Delegates are able to identify signs and symptoms of injuries related to poor Manual Handling techniques and have knowledge of reporting methods
- (5) The Delegates are able to demonstrate a problem solving approach to Manual Handling in a wind turbine environment
- (6) The Delegates are able to demonstrate Manual Handling risk reduction techniques



1.2 Duration of the BST Manual Handling Module

The optimal total time for completing this BST Manual Handling Module is estimated to be **4 hours**, including meals and breaks.

This BST training shall focus on the access and egress conditions encountered in wind turbine environments. The practical skills shall be trained and demonstrated in a restricted area of movement and all elements of the course shall be covered by demonstration and practical exercises where possible.

If this training is part of a programme of longer duration, the total contact time per day shall not exceed **8 hours** and the total training day shall not exceed **10 hours**. The total training day includes contact time, refreshment and meal breaks and travel between training sites where applicable. It shall be ensured that everyone is given the opportunity to share their opinions and experiences where possible.

Ensure that Delegates with prior experience share their experiences related to Manual Handling in a way that is constructive for the entire class.

1.3 Manual Handling Trainer/Delegate Ratio

- 1) The ratio shown for theory sessions indicates the maximum number of Delegates that shall attend the course.
- 2) The ratio shown for practical lessons indicates the maximum number of Delegates to be supervised by an instructor during each activity.

Module	Session	Trainer - Delegate Ratio
BST Manual Handling Module	Theory	1:12
	Practical	1:12

1.4 Equipment for Manual Handling Module

The following equipment is required during the entire duration of this BST Manual Handling Training to meet the needs of the BST Manual Handling Module

- 1) A Lumbar Vertebrae model for educational purposes
- 2) A model of a shoulder for educational purposes
- 3) Rescue dummy, weighing 30 Kg



4) Lifting props for Manual Handling, weighing maximum 15 Kg

5) Personal Protective Equipment (PPE)

In order to comply with national legislation and Standards, the equipment supplied and used by staff and Delegates shall follow the appropriate guidelines, e. g.:

Europe - EN	UK - BS
USA - ANSI	Canada - CSA
Australia and New Zealand - AS/NZS	Asia - ANSI / EN

Note: All equipment shall be maintained and where appropriate, inspected and tested in accordance with current national Standards/legislation and manufacturers' instructions.

1.5 BST Manual Handling Module time table

The order in which the elements of this BST training Module are delivered may vary.

Within the module timetables, approximate duration of each of the lessons are given. The training provider may choose to deliver elements of the training according to other timetables, as long as the total duration is not reduced, and practical elements are not reduced in length. Theoretical elements may be delivered during the practical exercises when feasible.

Lesson		Element	Approximate Duration
1	Introduction	1.1 Safety instructions and emergency procedures 1.2 Facilities 1.3 Introduction 1.4 Scope and main learning objectives 1.5 On-going assessments (Control Measures) 1.6 Motivation	
		TOTAL	15 min.

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2	Legislation	2.1 Global legislation 2.2 National legislation	
		TOTAL	10 min.
3	Risks and hazards	3.1 Risk and hazards in the wind turbine industry	
		TOTAL	15 min.
4	Spinal anatomy and posture	4.1 Anatomy 4.2 Symptom awareness 4.3 Reporting methods	
		TOTAL	20 min.
5	T.I.L.E. Principle and assessing aggravating factors and risks	5.1 T.I.L.E. principle 5.2 Further control measures	
		TOTAL	10 min.
6	Behavioural safety	6.1 Consequences of incorrect Manual Handling and unsafe behaviour	
		TOTAL	10 min.
7	Lifting techniques and Scenario-based training	7.1 Practise in safe lifting technique	
		TOTAL	120 min.
8	Evaluation	8.1 Summary 8.2 Evaluation 8.3 Training records	



		TOTAL	15 min.
GRAND TOTAL			215 min.

1.6 Detailed description of the BST Manual Handling Module

The learning outcomes specified for the BST Manual Handling Module are:

Lesson 1: Introduction

15 min.

The aim of this lesson is to give the Delegates the needed awareness of the course content and the facilities involved in order to ensure all Delegates are aware of what to expect and what is expected of them in the course.

To successfully complete this BST Module, Delegates shall be aware of:

- (1) Safety instructions and emergency procedures
- (2) Facilities
- (3) Who the Instructor and other Delegates are
- (4) Aims and main learning objectives
- (5) On-going assessment, according to GWO Control Measures
- (6) Motivation for this BST course

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

- 1.1.1 Safety instructions, according to internal procedures
- 1.1.2 Emergency procedures and emergency exits in the localities the Delegates can be expected to be located during the course

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

- 1.2.1 General description of the on-site facilities (Administration, dining area, restrooms, toilets, etc.)



ELEMENT 1.3 Introduction

Training Staff shall **give:**

1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give:**

1.3.2 A short introduction, including job function and expected primary geographic work location

Training Staff shall **explain:**

1.3.3 The programme of the BST Module, including breaks and meal times

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain:**

1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain:**

1.5.1 The reasons for the on-going assessment

1.5.2 GWO Control Measures and their use

ELEMENT 1.6 Motivation

Training Staff shall **explain:**

1.6.1 The importance of personal involvement in the course

1.6.2 The definition and need for correct Manual Handling

Lesson 2: Legislation

10 min.

The aim of this lesson is to increase the Delegates needed awareness and to inform them of the relevant legislation and demands in order to ensure the Delegates' understanding of the roles, responsibilities and rules that apply to Manual Handling.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of global legislation relevant to Manual Handling
- (2) Knowledge of national legislation relevant to Manual Handling

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ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

2.1.1 Applicable legislation

2.1.2 Legal responsibilities

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

2.2.1 Applicable legislation

2.2.2 Legislative requirements

2.2.3 Legal responsibilities

2.2.4 Role of industry organisations

Lesson 3: Risks and hazards

15 min.

The aim of this lesson is to increase the Delegates needed knowledge and understanding to avoid injuries associated with the risk and hazards of Manual Handling in a wind turbine environment. Delegates with prior experience shall be given opportunity to present their experience and challenges related to Manual Handling risk in the wind turbine environment. The discussion should be focused on how to avoid and control the risks.

To successfully complete this BST Module, Delegates shall be able to:

- 1) Demonstrate knowledge of the work environment in a wind turbine
- 2) Explain the risks associated with Manual Handling.

ELEMENT 3.1 Risk and hazards in the wind turbine industry

During this lesson the Delegates' experience and their observations shall be included and to the greatest possible extent this should be driving the discussion. When relevant, behavioural safety shall further be drawn into the discussion.

The Delegates are motivated to mention any specific situations where they find it hard to appropriately use correct Manual Handling techniques.

Based on Delegates' experience, the training staff shall **lead discussions on**:

- 3.1.1 Risks and hazards of Manual Handling relevant to the job functions within the wind industry such as

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- a. Awkward positions
- b. Forceful exertions
- c. Repetitive motions
- d. Contact stress
- e. Exposure of local body parts and entire body to mechanical vibrations
- f. Duration of exposure
- g. Frequency of exposure
- h. Intensity of exposure

3.1.2 How to avoid the risks and hazards and improve safety while executing Manual Handling related tasks

Lesson 4: Spinal Anatomy and Posture

20 min.

The aim of this lesson is to ensure the Delegates possess the needed general knowledge of spinal anatomy and the importance of neutral posture of the spine and shoulders in work-related situations.

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- 1) Knowledge of muscular and skeletal injuries
- 2) Understanding of spinal anatomy, including prolapsed disc and the importance of neutral posture
- 3) Understanding of shoulder anatomy, including common injuries
- 4) Understanding of symptom awareness and the importance of early detection and treatment
- 5) Knowledge of reporting methods
- 6) The use of different practical exercises for training the back and shoulders

ELEMENT 4.1 Anatomy

Training Staff shall lead a discussion on:

- 4.1.1 Muscular and Skeletal Injuries related to Manual Handling, including back Injuries, e.g. prolapsed disc, muscle strains
- 4.1.2 Spinal anatomy and posture

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- 4.1.3 Shoulder anatomy and common injuries when working above shoulder height e.g. tendonitis, bursitis

Training Staff shall **ensure**:

- 4.1.4 Basic understanding of the above

ELEMENT 4.2 Symptom awareness

Training Staff shall lead a discussion on:

- 4.2.1 Symptom awareness and the importance of early detection and treatment

Training Staff shall **ensure**:

- 4.2.2 Basic understanding of symptom awareness

ELEMENT 4.3 Reporting methods

Training Staff shall lead a discussion on:

- 4.3.1 Reporting methods and procedures in case of injuries

- a. National requirements
- b. Company specifics

Training Staff shall **ensure**:

- 4.3.2 Basic understanding of reporting methods

Lesson 5 T.I.L.E. Principle and assessing aggravating factors and risks

10 min.

The aim of this lesson is to ensure the Delegates possess the needed knowledge and skills to conduct a basic risk assessment and take precautions to eliminate the identified risks.

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- 1) Understanding of the Task Individual Load Environment (T.I.L.E.) Principle
- 2) Understanding of how to assess and control risks and aggravating factors
- 3) Knowledge of further Control Measures



NOTE: Please refer to annex 3: Manual handling risk assessment for details on T.I.L.E. Principle and assessing aggravating factors and risks. The annex 3 may be used as a basis for developing training material.

ELEMENT 5.1 T.I.L.E. Principle

Training staff shall lead a discussion on:

- 5.1.1 Basic, quick risk assessment, e.g. identification of aggravating factors, assess the level of risk, control the risk
- 5.1.2 Planning Manual Handling correctly by using the T.I.L.E. principle, including load weight, reaching distance and aggravating factors
 - a. Task (e.g. reaching, bending, stooping, repetition, duration, location, distance, hazards, pace)
 - b. Individual (e.g. warm up, posture, capability, height, size)
 - c. Load (e.g. weight and reaching distance, handles, size, temperature, texture)
 - d. Environment (e.g. space constraints, cold or heat, rain, wind, obstacles, stairs, poor lighting, vibrating, floor conditions)

Training Staff shall **ensure**:

- 5.1.3 Increased awareness and understanding of T.I.L.E principle, and how to mitigate aggravating factors and risks

ELEMENT 5.2 Further control measures

- 5.2.1 Further Control Measures to reduce risk of injury, including
 - a. Mechanical handling (e.g. cranes, scissor lifts, trolleys, steps)
 - b. PPE correct fit (e.g. correct sizes, boot laces tied)
 - c. Breaking up loads
 - d. Protecting pre-existing injuries
 - e. Adequate lighting
 - f. Good housekeeping



Lesson 6: Behavioural safety

10 min.

The aim of this lesson is to ensure the Delegates possess the needed understanding of the importance of remaining injury-free.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- 1) An understanding of the consequences of injuries
- 2) An understanding of the possible causes of injuries

ELEMENT 6.1 Consequences of incorrect Manual Handling and unsafe behaviour

Training Staff shall lead a discussion on :

- 6.1.1 Causes of injuries, i.e. time vs. effort/conditions/risk, putting job before self, negative habits, previous injuries, etc.
- 6.1.2 Highlight the importance of staying injury-free
- 6.1.3 Consequences of incorrect Manual Handling

Training Staff shall **ensure**:

- 6.1.4 Correct understanding of the consequences of incorrect Manual Handling and unsafe behaviour

Lesson 7: Lifting techniques and Scenario-based training

120 min.

The aim of the lesson is to practice safe lifting techniques in a variety of scenarios in wind turbine work environments. To the greatest possible extent, the scenarios should include the challenges that were mentioned by Delegates during lesson 3.

The key learning from the BST Manual Handling Module lessons shall be practised during scenario-based training.

To successfully complete this BST Module, Delegates must be able to demonstrate:

- 1) Stretching and warming up specific muscle groups
- 2) Safe lifting techniques



ELEMENT 7.1 Safe lifting techniques

Upon completion of this element Training Staff has ensured that Delegates are able to **explain, practice** and **demonstrate**:

- 7.1.2 Safe lifting techniques, including
- a. Warming-up and stretching relevant muscle groups
 - b. Safe lifting techniques from floor
 - c. Safe lifting techniques from height (e.g. bench, shelving rack)
 - d. Safe lifting techniques using 2 or more persons
 - e. Safe handling of at least two different types of loads (weight, shape) in at least three different manual handling scenarios simulating a wind turbine work situation with one or more obstacles (stairs, uneven floors and/or in a constrained space)

Note: Appropriate mechanical lifting aids can be included in the practical exercises.

ELEMENT 7.2 Practise in safe lifting techniques

The practical training shall be structured in such a way that Delegates gain practical understanding of the theory introduced in the previous lessons.

Specifically, experiences and challenges that were discussed during lesson 3 “Risks and hazards” be reviewed and applied during this scenario-based training.

Training Staff shall **explain**:

- 7.2.1 Safety procedures in the training area

Delegates shall **practise** and **demonstrate**:

- 7.2.2 Safe lifting techniques in scenarios relevant to the industry according to the Control Measures form (see **Lesson 7 Notes below**)

Training Staff shall facilitate debriefing:

- 7.2.3 Scenario-based training
- a. Review positive actions observed during exercise
 - b. Suggest points for improvement

Formal assessment of knowledge (see Section 1.7)



Lesson 7 Notes:

- 1) Each Delegate would benefit most if they participate in a practise scenario based on a wind turbine work environment.
- 2) Lifting various objects in the correct and proper manner. These can be of different shapes and sizes, but shall not weigh more than 15 Kg.
- 3) In teams (2 or more persons), perform a correct lift of a rescue dummy that weighs no more than 30 Kg

Lesson 8: Evaluation

15 min.

The aim of this lesson is to summarize the Module and give the Delegates the opportunity to conduct an open-minded review of the training and the instructor.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- 1) Active participation in the evaluation

ELEMENT 8.1 Summary

Training Staff shall:

- 8.1.1 Summarize the Module and give the Delegates final feedback

ELEMENT 8.2 Evaluation

Delegates shall:

- 8.2.1 Conduct a written evaluation

Training Staff shall:

- 8.2.2 Give necessary feedback on the written evaluations

ELEMENT 8.3 Training records

Training Staff shall:

- 8.3.1 Ensure that all Delegates are registered with a personal Delegate profile in WINDA and have provided their WINDA ID prior to completing the training course.



1.7 Delegate Performance Assessment

Assessment of learning outcomes:

Delegates will be assessed according to the learning outcomes stated in the detailed module description by means of direct observation and supplementary oral questions where appropriate.

The assessment shall be conducted by practical scenarios based on the WTG environment.

Each Delegate shall demonstrate:

- (1) Lifting various objects in the correct and proper manner. These can be of different shapes and sizes, but shall not weigh more than 15Kg
- (2) In teams (2 or more persons), perform a correct lift of a rescue dummy that weighs no more than 30 Kg
- (3) The scenarios shall give the Delegates the opportunity to practise some of the further Control Measures mentioned in Lesson 6, Element 6.1

The formal evaluation of knowledge of above scenarios shall be in accordance with the Control Measures Form (template provided as Annex 1). The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module.

Training Providers shall have a documented procedure in place for dealing with Delegates not meeting the stated learning outcomes. If a Delegate fails to meet the demands, they shall attend a new BST Manual Handling Module.



BST MODULE 3 - FIRE AWARENESS

1.1 Aims and objectives of BST Fire Awareness Module

The aim of this course is to give the delegates the basic knowledge and skills through theoretical and practical training.

Delegates should be able 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 delegates should be able to efficiently extinguish an initial fire by using basic hand held firefighting equipment.

The BST Fire Awareness Module shall ensure that:

- 1) The Delegates are able to **demonstrate** knowledge of the development and spread of fire (L2 – Knowledge)
- 2) The Delegates are able to **demonstrate** knowledge of the causes of fires in wind turbines and the related dangers (L2 – Knowledge)
- 3) The Delegates are able to **identify** any sign of a fire in a wind turbine environment (L3 - Skill)
- 4) The Delegates are able to **demonstrate** knowledge of the contingency plans in a wind turbine environment, including smoke detection and emergency escape procedures (L2 – Knowledge)
- 5) The Delegates are able to **demonstrate** correct actions for discovering a fire including correct use and fire extinguishing using firefighting equipment in a WTG (Level 3 - Skills)

1.2 Duration of BST Fire Awareness Module

The optimal total time for completing this BST Fire Awareness Module is estimated to be **4 hours**, including meals and breaks.

This BST training shall focus on the access and egress conditions encountered in wind turbine environments. The practical skills shall be trained and demonstrated in a restricted area of movement and all elements of the course shall be covered by demonstration and practical exercises, where possible.

If this training is part of a program of longer duration, the total contact time per day shall not exceed **8 hours** and the total training day shall not exceed **10 hours**. The total training day includes contact time, refreshment and meal breaks and travel



between training sites, where applicable. It shall be ensured that everyone is given the opportunity to share their opinions and experiences, where possible.

Ensure that Delegates with prior experience share their experiences related to Fire Awareness in a way that is constructive for the entire class.

1.3 Fire Awareness Trainer/Delegate Ratio

- 1) The ratio shown for theory sessions indicates the maximum number of Delegates that can attend the course.
- 2) Other ratios indicate the maximum number of Delegates to be supervised by (an) instructor(s) during each activity.

Module	Session	Trainer - Delegate Ratio
BST Fire Awareness Module	Theory	1:12
	Practical	2:12

1.4 Equipment for Fire Awareness Module

The following equipment is required to meet the needs for the Fire Awareness Module

- 1) Handheld CO₂ and water extinguishers
- 2) Fire blankets
- 3) Dummies
- 4) Personal Protective Equipment (PPE)
- 5) Personal escape mask (optional)

In order to comply with national legislation and standards, the equipment supplied and used by staff and Delegates shall follow the appropriate guidelines, e. g.:

Europe - EN	UK - BS
USA - ANSI	Canada - CSA
Australia and New Zealand - AS/NZS	Asia - ANSI / EN



Note: All equipment shall be maintained and where appropriate, inspected and tested in accordance with current national standards/legislation and manufacturers' recommendations.

1.5 BST Fire Awareness timetable

The order in which the elements of this BST training Module are delivered may vary.

Within the module timetables, approximate duration of each of the lessons are given. The training provider may choose to deliver elements of the training according to other timetables, as long as the total duration is not reduced, and practical elements are not reduced in length. Theoretical elements may be delivered during the practical exercises when feasible.

Lesson		Element	Approximate Duration
1	Introduction	1.1 Safety instructions and emergency procedures 1.2 Facilities 1.3 Introduction 1.4 Scope and main objectives 1.5 On-going assessment in accordance with Control Measures form 1.6 Motivation	
		TOTAL	15 min.
2	Legislation	2.1 Global legislation 2.2 National legislation	
		TOTAL	5 min.
3	Fire combustion and fire spread	3.1 Types of fires 3.2 Triangle of combustion 3.3 Fire spread	



		3.4 Fire gases	
		TOTAL	20 min.
4	Fire extinction	4.1 Contingency plan 4.2 Assessing the fire 4.3 Fire classes	
		TOTAL	25 min.
5	Fire Prevention	5.1 Fire hazards 5.2 Fire preventive measures	
		TOTAL	20 min.
6	Firefighting equipment in a WTG	6.1 Pre-use inspection 6.2 Correct use of firefighting equipment	
		TOTAL	20 min.
7	Practise and scenario-based training	7.1 Practise 7.2 Scenario-based training	
		TOTAL	80 min.
8	Evaluation	8.1 Summary 8.2 Evaluation 8.3 Training records	
		TOTAL	15 min.
GRAND TOTAL			200 min.



1.6 Detailed description of BST Fire Awareness Module

Lesson 1: Introduction

15 min.

The aim of this lesson is to give the Delegates the needed awareness of the course content and the facilities involved in order to ensure that all Delegates are aware of what to expect and what is expected of them during the course.

To successfully complete this BST Fire Awareness Module, Delegates shall be aware of:

- (1) Safety instructions and emergency procedures
- (2) Facilities
- (3) Who the instructor and other Delegates are
- (4) Aims and primary learning objectives
- (5) On-going assessment according to GWO Control Measures
- (6) Motivation for this course

Note: The administrative part of the registration shall be completed before the course commences.

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

- 1.1.1 Safety instructions according to internal procedures
- 1.1.2 Emergency procedures and emergency exits for the areas the Delegates will be located during the course

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

- 1.2.1 General description of the facilities at the training location
(Administration, dining area, restrooms, toilets, etc.)

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors

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Delegates shall **give:**

1.3.2 A short introduction, including job function and expected primary geographic work location

Training Staff shall **explain:**

1.3.3 The programme of the BST Fire Awareness Module, including breaks and meal times

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain:**

1.4.1 Scope and main objectives of this BST Fire Awareness Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain:**

1.5.1 The reasons for the on-going assessment

1.5.2 GWO Control Measures and their use

ELEMENT 1.6 Motivation

Training Staff shall **explain:**

1.6.1 The importance of personal involvement in the course

1.6.2 The definition and need for correct Fire Awareness

Lesson 2: Legislation

5 min.

The aim of this lesson is to give the Delegates the needed knowledge of relevant legislation and requirements that apply to fire prevention and firefighting equipment related to the industry.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of global legislation relevant to fire prevention and firefighting equipment in relation to the industry (L2 - Knowledge & Attitude)
- (2) Firefighting equipment in relation to the industry (L2 - Knowledge)



- (3) Knowledge of national legislation relevant to fire prevention and firefighting equipment in relation to the industry (L2 - Knowledge)

ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

2.1.1 Relevant legislation and requirements that apply to fire prevention and firefighting equipment in relation to the industry *onshore*

2.1.2 Relevant legislation and requirements that apply to fire prevention and firefighting equipment in relation to the industry *offshore*

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

2.2.1 Applicable legislation

2.2.2 National legislative requirements

2.2.3 Legal responsibilities

2.2.4 Local authorities

Lesson 3: Fire combustion and fire spread

20 min.

The aim of this lesson is to give the Delegates the needed general awareness of combustion, fire spread, the different types of fires and the composition of smoke to understand the elements needed for a fire and more importantly, how to extinguish as well as an understand how fire spreads and the dangers of smoke.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of the different types of fires and the material state, including the type of material surface (L1 - Knowledge)
- (2) Understanding of basic fire theory e.g. the triangle of combustion (L2 - Knowledge)
- (3) Understanding of fire spread and the dangers of fire gases (L2 - Knowledge)



ELEMENT 3.1 Types of fires

Training Staff shall **explain**:

- 3.1.1 Types of fires (solid, liquid, gas)
- 3.1.2 Material state, including how surface size influences combustion

Training Staff shall **ensure**:

- 3.1.3 Correct understanding of the types of fires and the state of material, including the influence of the size of the surface

ELEMENT 3.2 Triangle of combustion

Training Staff shall **explain**:

- 3.2.1 The elements needed for a fire to occur with reference to the 3 sides of the triangle of combustion (oxygen, material and temperature)

Training Staff shall **ensure**:

- 3.2.2 Correct understanding of the triangle of combustion

ELEMENT 3.3 Fire Spread

Delegates shall **explain**:

- 3.3.1 Fire spread by (in relation to the wind energy industry)

- (1) Conduction
- (2) Convection
- (3) Radiation
- (4) Direct Burning

Training Staff shall **ensure**:

- 3.3.2 Correct understanding of fire spread

ELEMENT 3.4 Fire gases

Delegates shall **explain**:

- 3.4.1 The composition and hazards of fire gases based on the materials in a WTG



Training Staff shall **ensure**:

3.4.2 Correct understanding of the composition and hazards of fire gases based on the materials in a WTG

Lesson 4: Fire extinguishing

25 min.

The aim of this lesson is to give the Delegates the needed knowledge and understanding to assess a fire and if needed to be able to identify the right extinguishing media according to the fire classes. Furthermore, the Delegates shall obtain the needed knowledge and understanding to act according to the contingency plans in a WTG.

To successfully complete this BST Module, Delegates shall be able to:

- (1) Demonstrate knowledge and understanding of contingency plans and the importance of knowing what to do in an emergency (L2 - Knowledge & Attitude)
- (2) Demonstrate knowledge and understanding of how to assess a fire and know how to act in a given situation (L2 - Knowledge & Attitude)
- (3) Identify the right fire extinguishing media according to the fire classes (L1 - Knowledge)

ELEMENT 4.1 Contingency plan

Delegates shall **explain**:

- 4.1.1 An example of a contingency plan in a wind turbine
- 4.1.2 Examples of the importance of knowing beforehand what to do in an emergency
- 4.1.3 When and how to use a personal escape mask

Training Staff shall **ensure**:

- 4.1.4 Correct understanding of a contingency plan in a wind turbine and examples of the importance of knowing correct actions prior to an emergency



ELEMENT 4.2 Assessing the fire

Delegates shall **explain**:

4.2.1 Fire intensity curve

4.2.2 How to assess the fire and how to act based on the assessment of the fire

Training Staff shall **ensure**:

4.2.3 Correct understanding of the fire intensity curve, how to assess the fire and what to do based on the assessment of the fire

ELEMENT 4.3 Fire classes

Delegates shall **explain**:

4.3.1 Methods of extinguishing fires with reference to the combustion square

4.3.2 Fire classes A, B, C, D, F

4.3.3 Which extinguishing media found in a WTG can be used for various fire classes

Training Staff shall **ensure**:

4.3.4 Correct understanding of the fire classes and the various fire extinguishers available for extinguishing various fire types

Lesson 5: Fire prevention

20 min.

The aim of this lesson is to give the Delegates the needed knowledge and understanding of taking preventive measures to improve fire safety in a WTG.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of hazards relating to fires within the wind industry (L2 - Knowledge & Attitude)
- (2) Knowledge and understanding of the importance of personal behavior as a fire prevention measure and how to improve fire safety during daily work (L2 - Knowledge & Attitude)

ELEMENT 5.1 Fire hazards

Delegates shall **explain**:

5.1.1 Fire hazards and risks in a WTG (manned/unmanned)

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Training Staff shall **ensure**:

5.1.2 Correct understanding of fire hazards and risks in WTGs (manned/unmanned)

ELEMENT 5.2 Fire prevention measures

Delegates shall **explain**:

5.2.1 How to improve fire safety in the daily work

5.2.2 Fixed systems in a WTG

Training Staff shall **ensure**:

5.2.3 Correct understanding of how to improve fire safety and fixed systems in WTGs

5.2.4 Awareness of fixed systems in WTGs, including requirements for special training for entering WTGs with fixed systems

Lesson 6: Firefighting equipment in a WTG

20 min.

The aim of this lesson is to give the Delegates the needed knowledge and skills to be able to use firefighting equipment in a WTG efficiently and without the risk of injuries.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge and understanding of pre-use inspection of various firefighting equipment with emphasis on equipment found in a WTG (L2 - Knowledge & Attitude)
- (2) Knowledge and understanding of safe distances and correct, efficient and safe use of various firefighting equipment with emphasis on equipment found in a WTG (L2 - Knowledge & Attitude)
- (3) Knowledge and understanding of advantages and disadvantages of various firefighting equipment with emphasis on equipment found in a WTG (L2 - Knowledge & Attitude)

ELEMENT 6.1 Pre-use inspection

Delegates shall **explain**:



6.1.1 The importance of pre-use inspection of firefighting equipment

Delegates shall **demonstrate**:

6.1.2 How to perform pre-use inspection of firefighting equipment

Training Staff shall **ensure**:

6.1.3 Correct understanding of the importance of and how to perform pre-use inspection of firefighting equipment

ELEMENT 6.2 Correct use of firefighting equipment

Training Staff shall **explain** and **demonstrate**:

6.2.1 Advantages and disadvantages of various firefighting equipment in WTGs

Training Staff shall **demonstrate**:

6.2.2 Safe distance and precautions with various firefighting equipment

6.2.3 Correct, efficient and safe use of various firefighting equipment in WTGs

Note: As a minimum handheld carbon dioxide (CO₂) and water extinguisher, including fire blankets shall be demonstrated, and dry chemical shall be explained.

Lesson 7: Practise and scenario-based training

80 min.

The aim of this lesson is to give the Delegates the needed skills to assess a fire and if needed, efficiently extinguish a small fire without the risk of injuries.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

(1) Efficient and safe use of the firefighting equipment in a WTG (L3 - Knowledge, Attitude & Skills)

(2) The ability to assess the fire and act in a correct manner upon discovering a fire in a WTG (L3 - Knowledge, Attitude & Skills)

ELEMENT 7.1 Practise

Delegates shall **practise** and **demonstrate**:

7.1.1 Efficient and safe use of CO₂ extinguishers

7.1.2 Efficient and safe use of the fire blanket

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Formal assessment of knowledge (see Section 1.7)

ELEMENT 7.2 Scenario-based training

Training Staff shall **explain** :

7.2.1 Safety procedures and emergency exits in WTG mock scenarios

Training Staff shall **demonstrate**:

7.2.2 Smoke development in an enclosed area and the correct reaction to such a situation

Delegates shall **demonstrate**:

7.2.3 Safe evacuation from smoke

7.2.4 Correct action of discovering fire or smoke in a WTG (various mock scenarios in WTGs)

Lesson 8: **Evaluation**

15 min.

The aim of this lesson is to summarise the Module and give the Delegates the opportunity to conduct an open-minded review of the training and the instructor.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

(1)Active participation in the evaluation

ELEMENT 8.1 Summary

Training Staff shall:

8.1.1 Summarise the BST Module and give the Delegates final feedback

ELEMENT 8.2 Evaluation

Delegates shall:

8.2.1 Conduct a written evaluation

Training Staff shall:

8.2.2 Give necessary feedback on the written evaluations



ELEMENT 8.3 Training records

Training Staff shall:

8.3.1 Ensure that all Delegates are registered with a personal Delegate profile in WINDA and have provided their WINDA ID prior to completing the training course.

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

Delegates will be assessed according to the learning outcomes stated in Section 1.6. by means of direct observation and supplementary oral questions where appropriate.

The assessment shall be conducted by practical scenarios based on the WTG environment. Each Delegate shall demonstrate:

- (1) Safe evacuation from a smoke filled area
- (2) Correct action on discovering a fire or smoke in a WTG

The formal evaluation of knowledge of above scenarios shall be in accordance with the Control Measures Form (template provided as Annex 1). The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module.

Training Providers shall have a documented procedure in place for dealing with Delegates not meeting the stated learning outcomes. If a Delegate fails to meet the demands, they shall attend a new BST Fire Awareness Module.



MODULE 4 - BST WORKING AT HEIGHTS

1.1 Aims and objectives of the BST Working at Heights Module

The aims of this course shall give the participants the necessary basic knowledge and skills through theoretical and practical training to use basic PPE and perform safe work at heights and safe and comprehensive basic rescue from heights in a remote wind turbine environment in accordance with BST Module Working at Heights.

The BST Module at Heights Module shall ensure that:

- (1) The Delegates are able to **demonstrate** knowledge of hazards and risks associated with working at height specific to a wind turbine generator (WTG)
- (2) The Delegates are able to **demonstrate** understanding of current national legislation regarding working at heights
- (3) The Delegates are able to **demonstrate** correct identification of PPE, including identification of European/Global standard markings e.g. harness, hard hat, lanyards, etc.
- (4) The Delegates are able to **demonstrate** the knowledge and skills to correctly inspect, service, store and correctly fit relevant PPE, e.g. harness, fall arrest lanyards, guided type fall arrest lanyards and work positioning lanyards
- (5) The Delegates are able to **demonstrate** correct use of the relevant PPE, e.g. harnesses fall arrest lanyards, guided type fall arresters and work positioning lanyards. This includes correct identification of anchor points and correct conduct on ladder
- (6) The Delegates are able to **demonstrate** correct use of evacuation devices
- (7) The Delegates are able to **demonstrate** how to approach rescue situations in WTGs and use rescue equipment efficiently

Note: This course is not designed to test the Delegate's capability and aptitude for working at heights, i.e. it is not a test for fear of heights.



1.2 Duration of the BST Working at Heights Module

The optimal total time for completing this BST Working at Heights Module is estimated to be **16 hours**, including meals and breaks.

This BST training shall focus on the access and egress conditions encountered in wind turbine environments. The practical skills shall be trained and demonstrated in a restricted area of movement and all elements of the course shall be covered by demonstration and practical exercises, where possible.

If this training is part of a program of longer duration, the total contact time per day shall not exceed **8 hours** and the total training day shall not exceed **10 hours**. The total training day includes contact time, refreshment and meal breaks and travel between training sites, where applicable. It shall be ensured that everyone is given the opportunity to share their opinions and experiences, where possible.

Ensure that Delegates with prior experience share their experiences related to Working at Heights in a way that is constructive for the entire class.

1.3 Working at Heights Trainer/Delegate Ratio

- (1) The ratio shown for theory sessions indicates the maximum number of Delegates attending the course.
- (2) Other ratios indicate the maximum number of Delegates to be supervised by an instructor during each activity.

Module	Session	Trainer - Delegate Ratio
BST Working at Heights Module	Theory	1:12
	Practical	1:4

1.4 Equipment for Working at Heights Module

The following equipment is required to instruct the BST Working at Heights Module.

Equipment norms must be in accordance with the legislative requirements of their geographic location.



For instance:

Europe

(1) Harness, according to:

- EN361 (Personal protective equipment against falls from a height - Full body harnesses) and/or
- EN358 (Personal protective equipment for work positioning and prevention of falls from a height - Belts for work positioning and restraint and work positioning lanyards) and/or
- EN 813 (Personal fall protection equipment - Sit harnesses)

(2) Work restraint lanyards, according to:

- EN358 (Personal protective equipment for work positioning and prevention of falls from a height - Belts for work positioning and restraint and work positioning lanyards)

(3) Fall arrest, according to:

- EN355 (Personal protective equipment against falls from a height - Energy absorbers)

(4) Helmets, according to:

- EN397 + A1 (Industrial safety helmets)

(5) Vertical fall arrest system, according to:

- PrEN353-1 (Personal fall protection equipment - Guided type fall arresters including an anchor line - Part 1: Guided type fall arresters including a rigid anchor line)
- Additional approval according to VG11 report CNB/P/11.073*
 - *Today there are no approved standards ensuring compliance with the PPE Directive, since prEN353-1 is not an approved standard and is not expected to be approved before 2015/16 during this transition period tests outlined by VG11 in report CNB/P/11.073 is the base for the Notified Bodies approval. With the new version of prEN353, new tests could be necessary.



(6) Vertical fall arrest system, according to:

- EN353-2 (Personal protective equipment against falls from height - Part 2: Guided type fall arresters, including flexible anchor lines)
- EN1891 (Personal protective equipment for the prevention of falls from height - Low stretch kernmantel ropes), or
- EN892 (Mountaineering equipment - Dynamic mountaineering ropes - Safety requirements and test methods)

(7) Self-Retractable Lifeline (SRL), according to:

- EN360 (Personal protective equipment against falls from a height - Retractable type fall arresters)

(8) Anchor points, according to:

- EN795 (Personal fall protection equipment - Anchor devices)
- For the rescue and evacuation exercises, the rigid fall protection anchor point shall be at least 6.75 meter above the ground floor*.
- *When calculating the minimum anchor point distance the required fall clearance distance shall be calculated using this formula: $RD = LL + DD + HD + C$ where RD=Required Fall Distance Clearance, LL=Length of Lanyard, DD=Deceleration Distance (fall distance), HH=Height of Suspended Worker, C=Safety Factor.

(9) Slings, according to:

- EN566 (Mountaineering equipment - Slings - Safety requirements and test methods)
 - *This European Standard specifies safety requirements and test methods for slings used for mountaineering including climbing, (slings are used as anchor points and since there are no industrial standard for slings, they must comply with the requirements in EN795 type B, anchor devices)

(10) Karabiner with mandatory automatic locking system, according to:

- EN362 (Personal protective equipment against falls from a height – Connectors)

(11) Evacuation/ Rescue devices, according to:

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- EN 341 (Personal fall protection equipment - Descending devices for rescue)
- EN1496 (Personal fall protection equipment - Rescue lifting devices)

(12) Aluminium ladders, according to:

- EN131-2 (Ladders - part2: Requirements, testing, marking)
- EN14122-4 (Safety of Machinery - Permanent means of access to machinery part 4: fixed ladders)

In order to comply with national legislation and Standards, the equipment supplied and used by staff and Delegates shall follow the appropriate guidelines, e. g.:

Europe - EN	UK - BS
USA - ANSI	Canada - CSA
Australia and New Zealand - AS/NZS	Asia - ANSI / EN

Note: All equipment shall be maintained and where appropriate, inspected and tested in accordance with current national Standards/legislation and manufacturers' recommendations.



1.5 BST Working at Heights Time Table

The order in which the elements of this BST training Module are delivered may vary.

Within the module timetables, approximate duration of each of the lessons are given. The training provider may choose to deliver elements of the training according to other timetables, as long as the total duration is not reduced, and practical elements are not reduced in length. Theoretical elements may be delivered during the practical exercises when feasible.

Lesson		Element	Approximate Duration
1	Introduction	1.1 Safety instructions and emergency procedures 1.2 Facilities 1.3 Introduction 1.4 Scope and main objectives 1.5 On-going assessment 1.6 Motivation	
		TOTAL	30 min.
2	Legislation	2.1 Global legislation 2.2 National legislation	
		TOTAL	20 min.
3	Harness	3.1 Proper inspection of PPE 3.2 How to fit the harness correctly 3.3 How often the harness shall be approved globally (EU, UK, USA, etc.) 3.4 Documentation 3.5 Maintenance of PPE	



		TOTAL	50 min.
4	Vertical fall arrest systems	4.1 Legal requirements 4.2 User inspection 4.3 Correct fitting 4.4 Correct use 4.5 Correct country approval 4.6 Correct documentation	
		TOTAL	40 min.
5	Fall arrest lanyards	5.1 Legal requirements 5.2 How to affix arrest systems 5.3 Fall indicator 5.4 Twin fall lanyards and a single fall arrest lanyards 5.5 Different places allowed as anchor points 5.6 The importance of always using a fall arrest system 5.7 User inspection	
		TOTAL	15 min.
6	Work positioning lanyards	6.1 How to attach lanyard correctly 6.2 How to use lanyards 6.3 How to attach lanyards correctly to the harness 6.4 The different places allowed to secure or move around 6.5 The importance of using work positioning in order to leave the hands free for work	



		6.6 User inspection	
		TOTAL	15 min.
7	Backup systems for exercises	7.1 Types of backup systems 7.2 Different maximum angles that are allowed 7.3 How to attach correctly to the harness 7.4 The different places it is allowed to secure 7.5 The importance of using backup 7.6 User check	
		TOTAL	15 min.
8	Practical exercises	8.1 Demonstrate correct use of fall arrest systems 8.2 Demonstrate correct use of work positioning lanyards 8.3 General understanding and use of all equipment	
		TOTAL	55 min.
9	Workshop: risks and hazards	9.1 How to use basic Working at Height	
		TOTAL	20 min.
10	Emergency procedure	10.1 Contents of an evacuation kit 10.2 Safe and correct evacuation 10.3 Prepare the equipment for use 10.4 Safe behaviour	



		TOTAL	160 min.
11	PPE review	11.1 The individual parts of the PPE equipment	
		TOTAL	15 min.
12	Rescue Devices	12.1 The individual parts of the different rescue equipment	
		TOTAL	10 min.
13	Suspension trauma	13.1 Suspension trauma	
		TOTAL	10 min.
14	Rescue exercises	14.1 Rescue situations in wind turbines 14.2 Safe and correct rescue 14.3 Correct usage of rescue devices 14.4 Correct usage of anchorage points 14.5 Correct behaviour on ladder with PPE	
		TOTAL	320 min.
15	Evaluation	15.1 Summary 15.2 Evaluation 15.3 Training records	
			30 min.
GRAND TOTAL			805 min.



1.6 Detailed description of BST Working at Heights Module

Lesson 1: Introduction

30 min.

The aim of this lesson is to give the Delegates the needed awareness of the course content and the facilities in order to ensure that all Delegates are aware of what to expect and what is expected of them during the course.

To successfully complete this BST Working at Heights Module, Delegates shall be aware of:

- (1) Safety instructions and emergency procedures
- (2) Facilities
- (3) Who the instructor and other Delegates are
- (4) Aims and primary learning objectives
- (5) On-going assessment according to GWO Control Measures
- (6) Motivation for this BST course

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

- 1.1.1 Safety instructions according to internal procedures
- 1.1.2 Emergency procedures and emergency exits in the areas where the Delegates can be expected to be located during the course

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

- 1.2.1 General description of the on-site facilities
(Administration, dining area, restrooms, toilets, etc.)

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors



Delegates shall **give:**

1.3.2 A short introduction, including their job function and expected primary geographic work location

Training Staff shall **explain:**

1.3.3 The programme of the BST Module, including time for breaks and meals

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain:**

1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain:**

1.5.1 The reasons for the on-going assessment

1.5.2 GWO Control Measures and their use

ELEMENT 1.6 Motivation

Training Staff shall **explain:**

1.6.1 The importance of personal involvement in the course

1.6.2 The definition and need for correct Working at Heights

Lesson 2: Legislation

20 min.

The aim of this lesson is to give the Delegates the needed knowledge of the site organisation and relevant legislation in order to ensure the Delegates' awareness of the roles, responsibilities and rules that apply to offshore wind farms.

To successfully complete this BST Module, Delegates shall be able to **demonstrate:**

- (1) Knowledge of global legislation relevant to Working at Height
- (2) Knowledge of national legislation relevant to Working at Height



ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

2.1.1 Applicable legislation

2.1.2 Legal responsibilities

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

2.2.1 Applicable legislation

2.2.2 Legislative requirements

2.2.3 Legal responsibilities

Lesson 3: Harness

50 min.

The aim of this lesson is to give the Delegates the needed, sufficient and basic knowledge of selection, approval and inspection of PPE in work-related situations.

To successfully complete this BST Module, Delegates shall be able to:

- (1) Demonstrate proper inspection of PPE
- (2) Demonstrate correct fitting of the harness
- (3) Demonstrate knowledge of approvals according to appropriate equipment guidelines (EU, UK, USA, etc.)
- (4) Identify the approval documentation, equipment serial number, authorisation date, etc.
- (5) Demonstrate knowledge of harness maintenance

ELEMENT 3.1 Proper inspection of PPE

Training Staff shall **explain** and **demonstrate**:

3.1.1 Selecting the correct sized harness for the intended work

3.1.2 Correct identification of the relevant standard markings

3.1.3 Manufacturer and/or legal inspection periods



- 3.1.4 Correct storage and maintenance (e.g. storage in dry environment, wash with fresh water, etc.)

Importance of self-inspection of the harness for defects, including:

- (1) Stitching
- (2) Metal parts
- (3) Straps
- (4) Back protection
- (5) Attachment points and D-Rings
- (6) Soiling of harness (e.g. oil spills)
- (7) Saltwater exposure
- (8) Locks

ELEMENT 3.2 How to fit the harness correctly

Delegates shall practise and demonstrate

- 3.2.1 Correctly fitting a harness
- 3.2.2 Shoulder straps should be loosened
- 3.2.3 Leg straps sit well
- 3.2.4 Abdominal strap should sit well
- 3.2.5 Chest strap (strapped slightly above or on the chest)
- 3.2.6 Pivot link shall be at the hip and shall be flexible, may not sit as high that it can damage ribs and internal organs by a fall

ELEMENT 3.3 Demonstrate how often the harness shall be approved globally (in the EU, UK, USA, etc.)

Training Staff shall explain and demonstrate:

- 3.3.1 How often the harness shall be approved globally (in the EU, UK, USA, etc.)



ELEMENT 3.4 Documentation, instrument number, authorisation date, etc.

Training Staff shall **explain**:

3.4.1 Documentation, instrument number, authorisation date, etc.

ELEMENT 3.5 Maintenance of PPE

Training Staff shall **explain**:

3.5.1 Maintenance of PPE

Lesson 4: Vertical fall arrest systems

40 min.

The aim of this lesson is to give the Delegates the needed knowledge and understanding of different types of vertical fall arrest systems.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of legal requirements and practical skills for using fall arrest systems when working at heights
- (2) User inspection
- (3) Correct fitting
- (4) Correct use
- (5) Knowledge about correct country approval

ELEMENT 4.1 Legal requirements for using fall arrest system when working at heights

Training Staff shall **explain** and **demonstrate**:

- 4.1.1 Systems currently in use (rail/wire/inertia reel)
- 4.1.2 Correct identification of the relevant standard markings
- 4.1.3 Manufacturer and/or inspection periods
- 4.1.4 Correct storage and maintenance

ELEMENT 4.2 How to do a user inspection of the vertical fall arrest system

Training Staff shall **explain** and **demonstrate**:

- 4.2.1 Damage or corrosion of rail/wire



4.2.2 Damage or corrosion of glider/slider

4.2.3 Saltwater exposure

4.2.4 Locks

ELEMENT 4.3 Correct fitting

Training Staff shall **explain** and **demonstrate**:

4.3.1 Correct fitting of various vertical fall arrest systems

ELEMENT 4.4 Correct use

Training Staff shall **explain** and **demonstrate**:

4.4.1 Correct use of various vertical fall arrest systems

ELEMENT 4.5 Correct country approval

Training Staff shall **explain** and **demonstrate**:

4.5.1 How Delegates can find the correct country approval

ELEMENT 4.6 Correct documentation

Training Staff shall **explain** and **demonstrate**:

4.6.1 How Delegates can find the correct documentation

Lesson 5: Fall arrest lanyards

15 min.

The aim of this lesson is to give the Delegates the needed knowledge and understanding of different types of fall arrest systems.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of legal requirements for using fall arrest systems when working at heights
- (2) How to correctly attach fall arrest systems to the harness (front and rear attachment points)
- (3) How to detect if PPE has experienced a fall (Fall indicator)
- (4) Knowledge between the differences of a twin fall arrest lanyard and a single fall arrest lanyard, as well as the different ways of usage

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(5) Knowledge of the different places allowed for use as anchor points

(6) Knowledge of the importance of always using a fall arrest system

(7) How to conduct a user inspection and see if it is approved by documentation/authorisation date

ELEMENT 5.1 Fall arrest lanyards

Training Staff shall **explain** and **demonstrate**:

5.1.1 Legal requirements for using fall arrest lanyards when working at heights

ELEMENT 5.2 How to correctly connect fall arrest lanyards to the harness

Training Staff shall **explain** and **demonstrate**:

5.2.1 How to attach fall arrest lanyards correctly to the harness

ELEMENT 5.3 Fall indicators

Training Staff shall **explain** and **demonstrate**:

5.3.1 How Delegates can inspect if the fall arrest lanyard has experienced a fall

ELEMENT 5.4 Twin and single fall arrest lanyards

Training Staff shall **explain** and **demonstrate**:

5.4.1 The difference between twin and single fall arrest lanyards, as well as the different ways of using and observing the manufacturer's user guidelines

ELEMENT 5.5 Different places allowed as anchor points

Training Staff shall **explain** and **demonstrate**:

5.5.1 The different places allowed as anchor points

Approved anchor points shall be pointed out for the Delegates

ELEMENT 5.6 The importance of always using fall arrest systems

Training Staff shall **explain** and **demonstrate**:

5.6.1 The Delegates shall understand the importance of always using fall arrest systems

ELEMENT 5.7 User inspection

Training Staff shall **explain** and **demonstrate**:

5.7.1 User inspection, according to manufacturer's guidelines and approval by documentation/authorisation date



Lesson 6: Work positioning lanyards

15 min.

The aim of this lesson is to give the Delegates the needed knowledge and skills to be able to use the appropriate methods to control and reduce the risk of injuries.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) How to attach the lanyard correctly to the ladder system
- (2) When using lanyard, they shall never lose focus due to their own safety
- (3) How to attach lanyards correctly to the harness (front and rear attachment points, side D-rings)
- (4) The different places one is allowed to secure or move around
- (5) Knowledge of the importance of using work positioning in order to leave hands free for work
- (6) Knowledge of a user inspection and check if PPE is approved via documentation and authorization date

ELEMENT 6.1 Correct attachment of work positioning lanyards

Training Staff shall **explain** and **demonstrate**:

6.1.1 How the Delegates attach work positioning lanyards correctly

- (1) To the ladder system
- (2) To other places where lanyard use is possible

ELEMENT 6.2 Using work positioning lanyards

Training Staff shall **explain** and **demonstrate**:

6.2.1 When using work positioning lanyards, Delegates shall never lose focus for their own safety

- (1) Paying attention to the manufacturers' guidelines

ELEMENT 6.3 Attaching the work positioning lanyards correctly to the harness

Training Staff shall **explain** and **demonstrate**:

6.3.1 Correctly attaching work positioning lanyards to the harness (front Attachment point, in both side D rings at once)



ELEMENT 6.4 The different places allowed to secure or move around

Training Staff shall **explain** and **demonstrate**:

6.4.1 The different places allowed to secure or move around

ELEMENT 6.5 The importance of using work positioning

Training Staff shall **explain** and **demonstrate**:

6.5.1 The importance of using work positioning in order to leave hands free for work

ELEMENT 6.6 User Inspection

Training Staff shall **explain** and **demonstrate**:

6.6.1 User inspection, according to the manufacturer's guidelines and approval by documentation/ authorisation date

Lesson 7: Backup systems for exercises

15 min.

The aim of this lesson is to give the Delegates the needed understanding of the importance of staying injury-free.

To successfully complete this BST Module, Delegates shall be able to demonstrate knowledge of:

- (1) The different types of backup systems there are and how they are used, what length they come in, what the difference is between wire and strap
- (2) The different maximum angles that are allowed
- (3) How to apply backup correctly to the harness, either in the A point on the back or in the A point in the front
- (4) The different places backup is allowed to be secured
- (5) The importance of using backup
- (6) How to conduct a user inspection and see if backup is approved, has documentation and authorization date



ELEMENT 7.1 Types of backup systems

Training Staff shall **explain** and **demonstrate**:

- 7.1.1 The different types of backup systems and how they are used, size and length, how wire and strap differ

ELEMENT 7.2 Different allowed maximum angles

Training Staff shall **explain** and **demonstrate**:

- 7.2.1 Different maximum angles that are allowed according to the manufacturers

ELEMENT 7.3 How to apply backup systems correctly to the harness

Training Staff shall **explain** and **demonstrate**:

- 7.3.1 How to attach backup systems correctly to the harness (front and rear attachment points)

ELEMENT 7.4 The different places backup systems are allowed to be secured

Training Staff shall **explain** and **demonstrate**:

- 7.4.1 The different places allowed to secure backup systems

ELEMENT 7.5 The importance of using backup systems

Training Staff shall **explain** and **demonstrate**:

- 7.5.1 The importance of using backup systems for exercises

ELEMENT 7.6 User inspection

Training Staff shall **explain** and **demonstrate**:

- 7.6.1 User inspection, according to manufacturer's guidelines, and inspection of approval by documentation/ authorisation date

Lesson 8: Practical exercises

55 min.

The aim of this lesson is to give the Delegates the needed skills to be able to demonstrate safe and controlled rescue, according to the Control Measures.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) That they are able to use the fall arrest systems in safe and correct ways



(2) That they are able to use the work position lanyards in safe and correct ways

(3) General understanding and use of all equipment

ELEMENT 8.1 Demonstrate correct use of fall arrest systems

Delegates shall **practise** and **demonstrate**:

8.1.1 Use of the fall arrest systems in a safe and correct manner

ELEMENT 8.2 Demonstrate correct use of work positioning lanyards

Delegates shall **practise** and **demonstrate**:

8.2.1 Use of the work position lanyards in a safe and correct manner

ELEMENT 8.3 General understanding and use of all equipment

Delegates shall **practise** and **demonstrate**:

8.3.1 General understanding and use of all equipment

Lesson 9: Workshop - risks/hazards

20 min.

The aim of this lesson is to give the Delegates the needed skills to be able to identify risks and hazards in a WTG environment.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

(1) How to use basic Working at Height in a wind turbine environment

(2) That they can discuss and explain multiple perspectives acquired through group discussions

ELEMENT 9.1 How Delegates use the BST Working at Heights course

Delegates shall **practise** and **demonstrate**:

9.1.1 How to use the BST Working at Heights course in a wind turbine environment

(1) Discuss and explain multiple perspectives acquired through group discussions



Note:

The class will be divided into three groups of four Delegates. The Delegates should use 10 minutes to discuss and generate ideas about rescue and emergency situations in the wind turbine environment. Each group should write the ideas on a flipchart that the instructor can display to enhance a large group discussion with the entire class during the remaining 10 minutes of the workshop.

Lesson 10: Emergency procedures

160 min.

The aim of this lesson is to give the Delegates the needed skills to be able to demonstrate correct emergency procedures in a wind turbine environment.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) The contents of an evacuation kit and how the equipment is used in practise
- (2) A safe and correct evacuation
- (3) How to prepare equipment for use, including correct usage of anchor points
- (4) Safe behaviour in connection with evacuation

If there is more than one participant on the top of the training tower at one time, all need to be secured, either by the evacuation device or by their fall arrest systems.

Trainers number 2 and 3 are assigned to help the participants if questions or problems should occur. It is the duty of Trainers number 2 and 3 to ensure that the evacuation takes place in a safe manner and that an evacuation/rescue device is used during every exercise as a backup device.

ELEMENT 10.1 Contents of an evacuation kit

Training Staff shall **explain** and **demonstrate**:

- 10.1.1 The contents of an evacuation kit and how the equipment is used in practise

ELEMENT 10.2 Safe and correct evacuation

Training Staff shall **explain** and **demonstrate**:

- 10.2.1 A safe and correct evacuation, which shall include
- (1) Attaching the evacuation device
 - (2) Fastening the device to the harness

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- (3) Removing the escape hatch door
- (4) Deploying the rope bag and inspecting for knots/ length
- (5) Sitting in the open hatch and putting tension on the rope
- (6) Holding onto the rope while getting out of the hatch
- (7) Evacuating to ground level
- (8) Disconnecting the evacuation device

ELEMENT 10.3 Preparing equipment for use

Training Staff shall **explain** and **demonstrate**:

- 10.3.1 How the Delegates prepare the equipment for use, including correct usage of anchor points

ELEMENT 10.4 Safe behaviour

Training Staff shall explain and demonstrate:

- 10.4.1 Safe behaviour in connection with evacuation

Delegates shall **demonstrate**:

- 10.4.2 An evacuation from height using full PPE
- 10.4.3 Disconnection of the device

Lesson 10 Notes

- (1) An instructor *shall* be at the height chosen to descend from
- (2) Instructor(s) and Delegates *shall* be secured to an anchor point while waiting to descend (this can be achieved by correct use of the fall arrest lanyard)
- (3) When Delegates are demonstrating the evacuation, a safety line that is connected to the Delegate's harness *shall* be used. This will be set up and controlled by the instructor and be secured to a separate anchor point than that of the evacuation device
- (4) Although not a requirement of this standard, Delegates may repeat the evacuation exercises should sufficient time be available



Lesson 11: PPE review

15 min.

The aim of this lesson is to give the Delegates the opportunity to discuss the individual parts of the PPE equipment and use of the PPE in their own words.

To successfully complete this BST Module, Delegates shall be able to obtain knowledge regarding:

(1) The individual parts of the PPE equipment and correct use of the PPE

ELEMENT 11.1 The individual parts of the PPE equipment

Delegates shall **explain** knowledge of:

11.1.1 The individual parts of the PPE equipment and instruction in use

Lesson 12: Rescue Devices

10 min.

The aim of this lesson is to give the Delegates the opportunity to discuss the individual parts of the rescue equipment and correct use in their own words.

To successfully complete this BST Module, Delegates shall be able to obtain knowledge regarding:

(1) The individual parts of the rescue equipment and use

ELEMENT 12.1 The individual parts of different rescue devices

Training Staff shall **explain** and **demonstrate**:

12.1.1 The individual parts of different rescue devices, including accessories and instructions of use



Lesson 13: Suspension trauma

10 min.

The aim of this lesson is to give the Delegates the opportunity to discuss ways to prevent suspension trauma and how to treat it in their own words.

To successfully complete this BST Module, Delegates shall be able to obtain knowledge regarding:

- (1) Suspension trauma, ways to prevent it and how to treat it

ELEMENT 13.1 Suspension trauma

Training Staff shall **explain** and **demonstrate**:

- 13.1.1 Suspension trauma, ways to prevent it and how to treat it

Lesson 14: Rescue exercises

320 min.

The aim of this lesson is to give the Delegates the opportunity to approach rescue situations in wind turbines, to do a safe and correct rescue in wind turbines while using correct rescue devices and anchor points and to show correct behaviour on ladders with PPE.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) How to approach rescue situations in wind turbines
- (2) A safe and correct rescue in a wind turbine environment
- (3) Correct usage of rescue devices
- (4) Correct usage of anchorage points
- (5) Correct behaviour on ladder with PPE

ELEMENT 14.1 Rescue situations in wind turbines

Training Staff shall **explain** and **demonstrate**:

- 14.1.1 How to approach rescue situations in wind turbines



ELEMENT 14.2 Safe and correct rescue

Training Staff shall explain and demonstrate:

- 14.2.1 How to conduct a safe and correct rescue in a wind turbine environment and First Aid relating to rescue

The exercises shall include:

- (1) Handling a conscious/ unconscious Casualty
- (2) Suspension trauma
- (3) Connecting the karabiner to the Casualty's harness
- (4) Applying tension to the rope to enable safe disconnection of the Casualty's Fall arrest and /or work positioning lanyard
- (5) Safe descent of Casualty

ELEMENT 14.3 Correct usage of rescue devices

Training Staff shall **explain** and **demonstrate**:

- 14.3.1 Correct usage of rescue devices, including:
- (1) User inspection and test
 - (2) Anchor points and positioning of the devices
 - (3) Slings
 - (4) Weight loads of equipment
 - (5) Correct behaviour on ladder with PPE

ELEMENT 14.4 Correct usage of anchorage points

Training Staff shall **explain** and **demonstrate**:

- 14.4.1 Correct usage of anchorage points

ELEMENT 14.5 Correct behaviour on the ladder with PPE

Training Staff shall **explain** and **demonstrate**:

- 14.5.1 Correct behaviour on ladder with PPE

Delegates shall **demonstrate**:

- 14.5.2 Correct use of the evacuation/ rescue device, including:

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- (1) User Inspection and test
- (2) Use of correct anchor points
- (3) Correct behaviour on ladder with PPE

14.5.3 Correct methods of rescue and use of rescue device, including:

- (1) Rescue of a **conscious** Casualty secured by their work positioning lanyard (outside of the ladder)
- (2) Rescue of an **unconscious** Casualty secured by their work positioning lanyard (outside of the ladder, with overhang)
- (3) Rescue of a **conscious** Casualty hanging by their fall arrest, secured by their work positioning lanyard (inside of the ladder)
- (4) Rescue of an **unconscious** Casualty hanging by their fall arrest lanyard by using a rescue device on the Casualty (inside of the ladder)

Formal assessment of knowledge (see Section 1.7)

Lesson 14 Notes

- (1) During the rescue scenarios, a rescue dummy can be used to simulate a Casualty
- (2) The instructor will notify the Delegate whether the Casualty is conscious or unconscious. Delegates may demonstrate the recovery position/seated position once the dummy has been lowered to a safe area
- (3) All appropriate PPE shall be worn during these exercises

Methods of preventing suspension trauma should be demonstrated during the practical exercises, as they will have already been discussed in theory. This will facilitate good small group discussions on the various methods of preventing suspension trauma.



Lesson 15: Evaluation

30 min.

The aim of this lesson is to summarize the Module and give the Delegates the opportunity to conduct an open-minded review of the training and the instructor.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- (1) Active participation in the evaluation

ELEMENT 15.1 Summary

Training Staff shall:

- 15.1.1 Summarize the BST Module and give the Delegates final feedback

ELEMENT 15.2 Evaluation

Delegates shall:

- 15.2.1 Conduct a written evaluation

Training Staff shall:

- 15.2.2 Give necessary feedback on the written evaluations

ELEMENT 15.3 Training records

Training Staff shall:

- 15.3.1 Ensure that all Delegates are registered with a personal Delegate profile in WINDA and have provided their WINDA ID prior to completing the training course.

1.7 Delegate performance assessment

Assessment of learning outcomes:

Delegates will be assessed according to the learning outcomes stated in Section 1.6 by means of direct observation and supplementary oral questions, where appropriate.

The assessment shall be conducted by practical scenarios based on the WTG environment. Each Delegate shall participate and demonstrate:

Correct use of the evacuation/rescue device, including:

- (1) User inspection and test
- (2) Use of correct anchor points

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(3) Correct behaviour on ladder with PPE

Correct rescue methods, including:

- (1) Rescue of a **conscious** casualty secured by their work positioning lanyard (from the outside of the ladder)
- (2) Rescue of an **unconscious** casualty secured by their work positioning lanyard (from the outside of the ladder, with hip diversion, i.e. rescue line is diverted using the side D-ring located at the hip of the rescuer's harness. This creates greater space between the casualty and the ladder)
- (3) Rescue of a **conscious** casualty hanging by their fall arrest lanyard secured by their work positioning lanyard (from the inside of the ladder)
- (4) Rescue of an **unconscious** casualty hanging by their fall arrest lanyard, (from the inside of the ladder)

The formal evaluation of knowledge of above scenarios shall be in accordance with the Control Measures Form (template provided as Annex 1). The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module. Training Providers shall have a documented procedure in place for dealing with Delegates not meeting the stated learning outcomes. If a Delegate fails to meet the demands, they shall attend a new BST Working at Height Module.



MODULE 5 – BST SEA SURVIVAL

1.1 Aims and objectives of the BST Sea Survival Module

The aims of this BST Sea Survival course are, by theoretical and practical training to give the participants the basic knowledge and skills to act safely and take the correct preventive actions in all aspects of offshore operations from shore to installation vessel or WTG and vice versa, both during normal operation and in an emergency in an offshore wind energy environment.

This BST Sea Survival Module shall ensure that:

- The Delegates can demonstrate the needed awareness of the site organisation and relevant legislation to ensure that the candidates are aware of the roles, responsibilities and rules that apply to offshore wind farms.
- The Delegates can demonstrate the needed knowledge to understand the importance of correct clothing and conduct in an offshore wind farm environment. Further to enable skills of detecting and treating stages of cold shock, hypothermia and drowning related to exposures to the human body in an offshore wind environment.
- The Delegates can demonstrate the needed knowledge and skills to recognise the advantages and limitations of personal LSA and PPE and usage in a correct and safe manner.
- The Delegates can demonstrate the needed knowledge related to GMDSS (Global Maritime Distress and Safety Systems) and SAR (Search and Rescue).
- The Delegates can demonstrate the needed skills individually and collective to enhance the chance of survival in an emergency at sea.
- The Delegates can demonstrate the needed knowledge to recognise the hazards and risks of transfer and take the correct preventive measures into account by following procedures and use the available LSA and PPE in a correct and safe manner.
- The Delegates can demonstrate the needed knowledge to ensure safe conduct on installations, vessels and WTG's during normal operations and in case of emergencies and evacuation.
- The Delegates can demonstrate the needed skills to conduct safe transfer of themselves and equipment between dock and vessel and WTG and vessel. Furthermore, to give the Delegates skills to assist in MOB situations.
- The Delegates can reflect on and process their learning outcome and key takeaways from the module, aiming to achieve a high learning transfer from the module to his/her way of work. Additionally, the aim is to give the Delegates the opportunity to conduct an open-minded written and oral formative evaluation of the training.



In addition to adhering to legal regulations and standards, the training provider must continuously ensure that the training material is updated and in alignment with industry guidelines G+ "Working at height in the offshore wind industry" and "Safe management of small service vessels used in the offshore wind industry".

1.2 Duration of the BST Sea Survival Module

The optimal total time for completing this BST Sea Survival Module is estimated to be **2 x 4 hours**, including meals and breaks.

This BST training shall focus on the access and egress conditions encountered in wind turbine environments. The practical skills shall be trained and demonstrated in a restricted area of movement and all elements of the course shall be covered by demonstration and practical exercises, where possible.

If this training is part of a programme of longer duration, the total contact time per day shall not exceed **8 hours** and the total training day shall not exceed **10 hours**. The total training day includes contact time, refreshment and meal breaks and travel between training sites where applicable. It shall be ensured that everyone is given the opportunity to share their opinions and experiences, where possible.

Ensure that Delegates with prior experience share their experiences related to Sea Survival in a way that is constructive for the entire class.

1.3 Trainer/Delegate Ratio

- (1) The ratio shown indicates the maximum number of Delegates that shall attend the course.
- (2) Other ratios indicate the maximum number of Delegates to be supervised by an instructor during each activity.

Module	Session	Trainer - Delegate Ratio
BST Sea Survival Module	Theory	1:12
	Practical	1:4



1.4 Equipment for Sea Survival module

The following equipment is required to meet the needs for the Sea Survival Module.

- (1) Rigid lifejackets
- (2) Inflatable lifejackets
- (3) Survival suits
- (4) Helmets
- (5) Inflatable life raft with equipment
- (6) Helicopter rescue sling
- (7) Cradle
- (8) Rescue net
- (9) Rescue device
- (10) Safety harnesses
- (11) Twin fall arrest lanyards
- (12) SRL
- (13) PPE
- (14) Various types of accessories for each detachment – quick release, restraint lanyard etc.

To comply with national legislation and Standards, the equipment supplied and used by staff and Delegates shall follow the appropriate guidelines, e. g.:

Europe – EN	UK – BS
USA – ANSI	Canada – CSA
Australia and New Zealand - AS/NZS	Asia - ANSI / EN

Note: All equipment shall be maintained and where appropriate, inspected and tested in accordance with current national Standards/legislation and manufacturers' recommendations.



1.5 BST Sea Survival Module time table

The order in which the elements of this BST training Module are delivered may vary.

Within the module timetables, approximate duration of each of the lessons are given. The training provider may choose to deliver elements of the training according to other timetables, if the total duration is not reduced, and practical elements are not reduced in length. Theoretical elements may be delivered during the practical exercises when feasible.

Lesson		Element	Approximate Duration
1	Introduction	1.1 Safety instructions and emergency procedures	
		1.2 Facilities	
		1.3 Instructor & delegate presentation	
		1.4 Aim & objectives and agenda	
		1.5 Motivation	
		1.6 Ongoing assessment	
		TOTAL	20 min.
2	Legislation	2.1 Global legislation	
		2.2 National legislation	
		TOTAL	5 min.
3	Exposure, Cold Shock, Hypothermia and Drowning	3.1 Exposure	
		3.2 Cold Shock	
		3.3 Hypothermia	
		3.4 Drowning	



		TOTAL	15 min.
4	Life Saving Appliances and PPE	4.1 Personal LSA and PPE	
		4.2 Collective LSA	
		TOTAL	10 min.
5	SAR and GMDSS	5.1 SAR	
		5.2 GMDSS and transponders	
		5.3 Actions to enhance detection	
		TOTAL	10 min.
6	Practical Sea Survival	6.1 Correct donning and use of LSA and PPE	
		6.2 Risks related to evacuation and release into water	
		6.3 Single and double emergency descent	
		6.4 Correct usage of life raft	
		6.5 Helicopter rescue from water	
		6.6 Summary be exercise	
		TOTAL	120 min.
7	Safe transfer	7.1 Safety introduction onboard transfer vessel	
		7.2 Hazards related to different types of transfers	
		7.3 Safe handling of equipment and storage	
		TOTAL	20 min.



8	Installations, vessels and WTGS	8.1 Safety on board	
		8.2 Contingency plans	
		TOTAL	5 min.
9	Transfer Practical	9.1 Safe transfer between dock and vessel	
		9.2 Safe transfer between vessel and WTG	
		9.3 MOB procedures and equipment on installation, vessel or WTG	
		TOTAL	180 min.
10	Evaluation	10.1 Reflection session	
		10.2 Formative evaluation	
		TOTAL	15
		GRAND TOTAL	400 min.

1.6 Detailed description of BST Sea Survival Modul

The learning outcomes specified for the BST Sea Survival Module are:

Lesson 1: Introduction

20 min.

The aim of this lesson is to introduce the Delegates to the course, each other, the facilities and what is expected of them during the course.

To successfully complete this lesson of the Sea Survival Module, Delegates must be able to:

- Explain the safety rules and emergency procedures of the training facilities
- Locate emergency exits and equipment, and relevant training facilities

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- Recognize who the instructor and other Delegates are
- Describe the main aim and main learning objectives
- Explain the on-going assessment according to delegates assessment form
- State own expectations for the course

ELEMENT 1.1 Safety introductions and emergency procedures

Training Staff shall **explain**:

- 1.1.1 Safety instructions according to internal procedures
- 1.1.2 Emergency procedures and emergency exits in the areas where the Delegates can be expected to be located during the **course**

ELEMENT 1.2 Facilities

Training Staff shall **give**:

- 1.2.1 A general description of the on-site facilities (Administration, dining area, restrooms, etc.)

ELEMENT 1.3 Instructor & delegate presentation

Training Staff shall:

- 1.3.1 Ensure that all Delegates are registered with a personal Delegate profile in WINDA and have provided their WINDA ID prior to completing the training course.
- 1.3.2 Give a short introduction, including their backgrounds as instructors

Delegates shall:

- 1.3.3 Give a short introduction, including their job function, onshore/offshore experience, time of employment in the wind industry, and expected primary geographic work location, etc.
- 1.3.4 Present his/her own expectations for the course

ELEMENT 1.4 Aim & objectives and agenda

Training staff shall **explain**:

- 1.4.1 The overall aim & objectives and agenda of this Sea Survival Module, highlighting the rescue team coordinator functionality

ELEMENT 1.5 Motivation

Training Staff shall **explain**:



- 1.5.1 Why advanced rescue preparedness and skills are relevant
- 1.5.2 The importance of personal involvement in the course
- 1.5.3 How the Delegates will be challenged, and why

ELEMENT 1.6 Ongoing assessment

Training Staff shall **explain**:

- 1.6.1 The reasons for the on-going **assessment**
- 1.6.2 The GWO Delegate Assessment Form and its use
- 1.6.3 What is expected of the Delegates

Lesson 2: Legislation

5 min.

The aim of this lesson is to give the Delegates the needed awareness of the site organisation and relevant legislation to ensure that the candidates are aware of the roles, responsibilities and rules that apply to offshore wind farms.

To successfully complete this BST Module, Delegates shall be able to:

- Outline the site organization and the various units on a site
- Identify global legislation relevant to sea survival
- Give examples of national legislation relevant to sea survival

ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

- 2.1.1 Site organization and types of units on a site
- 2.1.2 Applicable legislation
- 2.1.3 Legal responsibilities

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

- 2.2.1 The importance of knowing the applicable country specific legislation

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Lesson 3: Exposure, Cold Shock, Hypothermia and Drowning

15 min.

The aim of this lesson is to provide Delegates with the needed knowledge to understand the importance of correct clothing and conduct in an offshore wind farm environment. Further to enable skills of detecting and treating various stages of cold shock, hypothermia and drowning related to various exposures to the human body in an offshore wind environment.

To successfully complete this BST Module, Delegates are expected to:

- Explain the human body's reaction to the exposure to different offshore environments and what precautions to take
- Describe bodily consequences of cold shock and how to prevent it
- Explain how to detect the symptoms of drowning, including correct First Aid procedures
- Explain how to detect the symptoms of hypothermia and how to administer correct First Aid

ELEMENT 3.1 Exposure

Training Staff shall **explain**:

3.1.1 Different types of exposures and relevant precautions

ELEMENT 3.2 Cold Shock

Training Staff shall **explain**:

3.2.1 The bodily reaction related to Cold Shock

3.2.2 The various symptoms and how to behave in relation to Cold Shock

ELEMENT 3.3 Hypothermia

Training Staff shall **explain** and **demonstrate**:

3.3.1 The various stages of hypothermia and the symptoms and the correct First Aid treatment for each stage

Delegates shall **explain**:

3.3.2 Explain how to detect the symptoms of hypothermia and how to administer correct First Aid

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ELEMENT 3.4 Drowning

Training Staff shall **explain**:

- 3.4.1 Symptoms and correct First Aid treatment for drowning
- 3.4.2 Secondary drowning



Lesson 4: Life Saving Appliances and PPE

10 min.

The aim of this lesson is to give the Delegates the needed knowledge and skills to recognise the advantages and limitations of personal LSA and PPE and usage in a correct and safe manner.

To successfully complete this BST Module, Delegates shall be able to:

- Define advantages and limitations of personal LSA and PPE related to the industry
- Identify different types of suits – anti exposure (transfer suit) and immersion suits (Vessel evacuation)
- Classify advantages and limitations of LSA related to the industry

ELEMENT 4.1 Personal LSA and PPE

Training Staff shall **explain** and **demonstrate**:

- 4.1.1 Advantages and limitations of the different personal LSA and PPE related to the industry including different types of PLB, life jackets, suits – anti exposure (transfer suit) and immersion suit (vessel evacuation)
- 4.1.2 The correct use of the different personal LSA and PPE and importance of familiarization of the equipment
- 4.1.3 Correct pre-use check, maintenance and storage of personal LSA and PPE

ELEMENT 4.2 Collective LSA

Training Staff shall **explain**:

- 4.2.1 Advantages and limitations of the different collective LSA, related to the industry – Life rafts, life boats and Marine evacuation systems (MES)



Lesson 5: SAR and GMDSS

10 min.

The aim of this lesson is to give the Delegates the needed knowledge related to GMDSS (Global Maritime Distress and Safety Systems) and SAR (Search and Rescue).

This will enable the candidates to understand and act accordingly to enhance their efficiency and response time of the SAR operation and thereby their own evacuation and rescue.

To successfully complete this BST Module, Delegates shall be able to demonstrate:

- Knowledge of the SAR operations
- Understanding the GMDSS and transponders
- Actions to enhance detection

ELEMENT 5.1 SAR

Training Staff shall **explain**:

5.1.1 SAR operations

ELEMENT 5.2 GMDSS and transponders

Training Staff shall **explain** and **demonstrate**

5.2.1 GMDSS including transponders and locators

- (1) Emergency Positioning Indicating Radio Beacon (EPIRB)
- (2) Search and Rescue Transponder (SART)
- (3) Personal Locating Beacon (PLB)

Delegates shall **demonstrate**:

5.2.2 Knowledge about the different transponder's types and usage

ELEMENT 5.3 Actions to enhance detection

Training Staff shall **explain** and **demonstrate**

5.3.1 Actions to enhance detection

Delegates shall **demonstrate**:

5.3.2 The ability to describe the different actions to enhance detection

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Lesson 6: Practical sea survival

120 min.

The aim of this lesson is to give the Delegates the needed skills to enhance the chance of individual and collective survival in an emergency at sea.

To successfully complete this BST Module, Delegates shall be able to:

- Demonstrate correct donning and use of LSA and PPE (by doing so be able to perform an effective buddy check)
- Demonstrate knowledge of risks related to evacuation and release into water (current, wave and swell and how to apply sea survival techniques)
- Demonstrate a safe single and double evacuation from a mock WTG by descending into the water detaching from the evacuation system
- Demonstrate the correct use of a life raft to enhance the chances of survival in an emergency at sea
- Explain correct behavior related to own rescue from water to helicopter without assistance from helicopter rescue swimmer
- Demonstrate the needed skills to survive an emergency at sea both by own means and in cooperation with others

ELEMENT 6.1 Correct donning and use of LSA and PPE

Training Staff shall **explain** and **demonstrate**:

- 6.1.1 Characteristics of LSA and PPE
- 6.1.2 Correct donning of LSA and PPE, including immersion and transfer suits while focussing of the implications of failing to do so correctly
- 6.1.3 The purpose and procedure for Buddy check
- 6.1.4 The potential exposures when using LSA and PPE in a WTG environment

Delegates shall **demonstrate**:

- 6.1.5 Correct donning and use of personal LSA and PPE, including suit, life jackets and harness
- 6.1.6 Buddy check
- 6.1.7 Different exposures



ELEMENT 6.2 Risks related to evacuation and release into water

Training Staff shall **explain** and **demonstrate**:

- 6.2.1 Risks related to the evacuation and release in water currents, waves and swell and how to apply sea survival techniques. Including different types of evacuation, by use of equipment or manual evacuation (jump, ladder etc.)
- 6.2.2 Controlled entry into the water from a height
- 6.2.3 Heat Escape Lessening Posture (H.E.L.P.)
- 6.2.4 Individual swimming techniques
- 6.2.5 Collective swimming techniques
- 6.2.6 Collective techniques to prevent hypothermia
- 6.2.7 Bodily reaction related to Cold Shock and the related symptoms
- 6.2.8 The stages of hypothermia and the symptoms and the correct First Aid treatment

Delegates shall **demonstrate**:

- 6.2.10 The ability to enter the water from a height in a controlled manner
- 6.2.11 Risks related to the evacuation and release in water currents, waves and swell and how to apply sea survival techniques
- 6.2.12 H.E.L.P.
- 6.2.13 Individual swimming techniques
- 6.2.14 Collective swimming techniques
- 6.2.15 Collective techniques to prevent hypothermia
- 6.2.16 Techniques to enhance chances of being spotted

Formal assessment of knowledge (see Section 1.7)



ELEMENT 6.3 Single and double emergency descent

Training Staff shall **explain** and **demonstrate**:

- 6.3.1 Single and double evacuation from WTG by descent into the water including:
 - 6.3.1.1 Pre-use inspection
 - 6.3.1.2 Correct fitting of harness
 - 6.3.1.3 Attachment
 - 6.3.1.4 Descent into water (single and double evacuation)
 - 6.3.1.5 Inflation of lifejacket
 - 6.3.1.6 Detachment in the water (various types of accessories for each detachment – quick release, restraint lanyards etc.) (covering risks of panic, bodily malfunction, accessibility due to body positioning and equipment restraints)

Delegates shall **demonstrate**:

- 6.3.2 Evacuation from WTG by descent into the water including:
 - 6.3.2.1 Pre-use inspection
 - 6.3.2.2 Correct fitting of harness
 - 6.3.2.3 Attachment
 - 6.3.2.4 Descent into water (single and double evacuation)
 - 6.3.2.5 Inflation of lifejacket
 - 6.3.2.6 Detachment in the water (various types of accessories for each detachment – quick release, restraint lanyards etc.) (covering risks of panic, bodily malfunction, accessibility due to body positioning and equipment restraints)



ELEMENT 6.4 Correct usage of life raft

Training Staff shall **explain** and **demonstrate**:

- 6.4.1 Inflation of a life raft
- 6.4.2 Methods of entering a life raft
- 6.4.3 Immediate and further actions in a life raft
- 6.4.4 The equipment in life rafts
- 6.4.5 Righting a capsized life raft
- 6.4.6 The stages of hypothermia and the symptoms and the correct First Aid treatment for each stage
- 6.4.7 GMDSS including transponders and locators
 - 6.4.7.1 Emergency Positioning Indicating Radio Beacon (EPIRB)
 - 6.4.7.2 Search and Rescue Transponder (SART)
 - 6.4.7.3 Personal Locating Beacon (PLB)
 - 6.4.7.4 Actions to enhance detection

Delegates shall **demonstrate**:

- 6.4.8 Ability to enter a life raft
- 6.4.9 The ability to right a capsized life raft
- 6.4.10 Knowledge of immediate and further actions in a life raft
- 6.4.11 The ability to find and handle the equipment in a life raft
- 6.4.12 The correct First Aid treatment for hypothermia

Formal assessment of knowledge (see Section 1.7)



ELEMENT 6.5 Helicopter rescue from water

Training Staff shall **explain** and **demonstrate**:

- 6.5.1 The fitting of a helicopter lifting sling, subsequent lifting and (simulated) entry into a rescue helicopter including:
- (1) Single lift
 - (2) Body posture
 - (3) Aircraft entry

ELEMENT 6.6 Summary by exercise

Training Staff shall **explain**:

- 6.6.1 Safety procedures and briefing of the exercise to ensure that the delegates understand that they are to demonstrate the skills covered in Lesson 6 practical sea survival

Delegates shall **demonstrate** the following in one cohesive scenario:

- 6.6.2 Controlled entry into the water from a height
- 6.6.3 Individual swimming techniques
- 6.6.4 Correct use of collective techniques to prevent hypothermia
- 6.6.5 Collective swimming techniques
- 6.6.6 Entry into a life raft
- 6.6.7 Immediate actions in a life raft
- 6.6.8 Recovery of a nearby casualty in the water
- 6.6.9 Helicopter hoist 1 delegate from life raft

Formal assessment of knowledge (see Section 1.7)



Lesson 7: Safe transfer

20 min.

The aim of this lesson is to give the Delegates the needed knowledge to recognise the hazards and risks of transfer and take the correct preventive measures into account by following procedures and use the available LSA and PPE in a correct and safe manner.

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- Knowledge of the importance of the safety introduction onboard transfer vessels
- Understanding of hazards related to the different types of transfers and how to mitigate these hazards in each situation (dynamic/static – static/dynamic, dynamic/dynamic)
- Understanding of the safe handling of equipment and storage

ELEMENT 7.1 Safety introduction onboard transfer vessel

Training Staff shall **explain**:

7.1.1 The content and importance of the safety briefing

7.1.2 Vessel conduct on board

Delegates shall **discuss**:

7.1.3 The importance of the safety briefing and its content

7.1.4 How correct conduct on board can reduce hazards and risks

ELEMENT 7.2 Hazards related to the different types of transfers

Training Staff shall **explain**:

7.2.1.1 The hazards related to the different types of transfers and how to mitigate these hazards in each situation (dynamic/static – static/dynamic, dynamic/dynamic)

Delegates shall **demonstrate** knowledge of:

7.2.1.2 Different types of transfers and how to mitigate the different hazards

7.2.1.3 Different types of transfer principles/types

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ELEMENT 7.2.2 Transfer vessels

Training Staff shall **explain**:

7.2.2.1 The different types of transfer vessels commonly used by the WTG

7.2.2.2 Various types of vessels the delegate may engage in a Sea Survival situation

Delegates shall **demonstrate** knowledge of:

7.2.2.3 Different types of transfer vehicles commonly used by the WTG industry

ELEMENT 7.2.3 Safe transfers from vessel to WTG

Training Staff shall **explain**:

7.2.3.1 Safe transfer from vessel to WTG and back* including:

(1) Use of Self-Retractable Lifeline (SRL)

(2) Use of twin fall arrest lanyards

(3) The final decision whether to transfer or not lies with the transferee

*) Based on the "G+ Offshore Wind Health and Safety Association, Good Practice Guideline: Working at height at the offshore wind industry", section "4.4 Transfer By Stepping Over Between Vessels And Offshore Structures", and in particular section:

- 4.4.3 Protection against falling: SRL on boat landing ladder

- 4.4.2.2. Roles of Supervisors, Vessel Captain, Deckhand and Passengers

Delegates shall **discuss**:

7.2.3.2 The differences in handling the self-retractable lifeline (SRL) and the twin fall arrest lanyards

ELEMENT 7.2.4 Safe transfer from vessel to vessel and dock to vessel

Training Staff shall **explain**:

7.2.4.1 Safe transfer from dock to vessel

7.2.4.2 Safe transfer from vessel to vessel



The delegates shall **demonstrate** knowledge of:

7.2.4.3 How to safely transfer from dock to vessel and vessel to vessel

ELEMENT 7.3 Safe handling of equipment and storage

Training Staff shall **explain**:

7.3.2.1 Safe handling of equipment and storage

Delegates shall **discuss**:

7.3.2.2 The implications of failing to handle equipment safely

7.3.2.3 The responsibilities of storing equipment correctly

Lesson 8: Installations, vessels and WTGs

5 min.

The aim of this lesson is to give the Delegates the needed knowledge to ensure safe conduct on installations, vessels and WTG's during normal operations and in case of emergencies and evacuation.

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- Understanding of the importance of general safety on board
- Understanding of contingency plans on installations, vessels and WTG

ELEMENT 8.1 Safety on board

Training Staff shall **explain** and **demonstrate**:

8.1.1 General safety on board installations, vessels and WTGs

Delegates shall **discuss**:

8.1.2 How can failing to adhere to general safety on board installations, vessels and WTGs lead sea survival situations

ELEMENT 8.2 Contingency plans

Training Staff shall **explain** and **demonstrate**:

8.2.1 Contingency plans on installations, vessels and WTGs



Delegates shall **demonstrate** knowledge of:

- 8.2.2 Where to find the applicable contingency plan on installations, vessels and WTG (i.e. fire/MOB/Abandon ship)

Lesson 9: Transfer Practical

180 min.

The aim of this lesson is to give the Delegates the needed skills to conduct safe transfer of themselves and equipment between dock and vessel and WTG and vessel. Furthermore, to give the Delegates skills to assist in MOB situations.

To successfully complete this BST Module, Delegates shall be able to **demonstrate**:

- Safe transfer of oneself and equipment between dock and vessel
- Safe transfer of oneself and equipment between vessel and WTG (with and without a quick connector)
- Skills to assist act accordingly in case of falling over board, using various MOB procedures and equipment on installation, vessel or WTG individually and by assisted method

ELEMENT 9.1 Safe transfer between dock and vessel

Training Staff shall **explain** and **demonstrate**:

- 9.1.1 Safe transfer of self and equipment between dock and vessel
- 9.1.2 Safe handling of equipment and storage onboard

Delegates shall **demonstrate**:

- 9.1.3 Safe transfer of self and equipment between dock and vessel
- 9.1.4 How to handle equipment safely and store correctly when applicable

ELEMENT 9.2 Safe transfer between vessel and WTG

Training Staff shall **explain** and **demonstrate**:



- 9.2.1 The importance of identifying hazards (swells, marine growth, waves, equipment failure) relating to the transfer, including the right to say stop/refuse to transfer
- 9.2.2 Safe transfer of self between vessel and WTG using:
 - (1) SRL with quick connector
 - (2) SRL without connector
 - (3) Twin fall arrest lanyards
- 9.2.3 The importance of observing and learning from the other delegates doing the transfer exercises
- 9.2.4 Practical and constructive feedback to the delegates during the exercises

Delegates shall **demonstrate:**

- 9.2.5 Two transfers* of self of each type listed below pr. delegate:
 - (1) SRL with quick connector
 - (2) SRL without connector
 - (3) Twin fall arrest lanyards

**) Based on the "G+ Offshore Wind Health and Safety Association, Good Practice Guideline: Working at height at the offshore wind industry", section "4.4.3 Protection against falling: SRL on boat landing ladder"*
- 9.2.6 Pre-use inspection of PPE (quick connector included) prior to commencing transfer process
- 9.2.7 Keep one hand on handrail when moving about vessel
- 9.2.8 Advance from the designated transfer waiting area to the vessels transfer position upon the command "ADVANCE" from the Deckhand
- 9.2.9 To hold on to the vessel for safety and prepare his quick connector
- 9.2.10 To connect his quick connector to the attachment point of the SRL when the Deckhand calls out the command "TRANSFER" and presents the SRL attachment point to him



- 9.2.11 To step across to the WTG ladder and climb immediately after connecting to the SRL, with the SRL loose retrieval line over his shoulder
- 9.2.12 To immediately disconnect from the SRL on the command "ABORT TRANSFER" from the Deckhand
- 9.2.13 To close the platform gate or provide alternative fall protection before disconnecting from the SRL, and give the command "CLEAR" to signal to the Deckhand that the SRL is ready to use for the next transferee
- 9.2.14 Verify with the Deckhand that transfer can commence by giving the command "READY FOR TRANSFER", before transfer from WTG to vessel (egress) commences
- 9.2.15 Inspects the SRL brake function and fall indicator prior to the transfer from WTG to vessel
- 9.2.16 To connect to the SRL and start your transfer from WTG to vessel immediately
- 9.2.17 To identify the Deckhand's count down during climbing from the 5th ladder rung above the CTV deck "FIVE, FOUR, THREE, TWO, ONE"
- 9.2.18 Upon the Deckhand's command "ONE"; move one hand to the quick connector's release function while keeping three points of contact with the ladder, and orientate towards the vessel while stepping across
- 9.2.19 Immediately release of the quick connector from the SRL as soon as he touches the vessel with his 2nd foot
- 9.2.20 Immediately climb upwards to a safe position upon the Deckhand's command "ABORT" during his descent, and resume his descent upon the Deckhand's command "READY" or "DOWN"
- 9.2.21 Application of the above-mentioned principals during transfer without quick connector and with twin fall arrest lanyards
- 9.2.22 Loud and clear communication
- 9.2.23 The ability to react to instructions and hazards during the transfers



ELEMENT 9.3 MOB procedures and equipment on installation, vessel or WTG

Training Staff shall **explain** and **demonstrate**:

- 9.3.1 MOB procedures on installation, vessel or WTG, including what to do if one falls over board or sees a person falling over board
- 9.3.2 Different types of recovery equipment and methods of use including:
Recovery from water by own assistance, assisted recovery from water in cooperation between casualty and rescuer, and by means of cradle and rescue net

Delegates shall **demonstrate**:

- 9.3.5 MOB procedures
- 9.3.6 Recovery from water by own assistance
- 9.3.7 Assisted recovery from water
- 9.3.8 Recovery from water by means of cradle and rescue net

Formal assessment of knowledge (see Section 1.7)

Lesson 10: Evaluation

15 min.

The aim of this lesson is to enable the Delegates to reflect on and process their learning outcome and key takeaways from the module, aiming to achieve a high learning transfer from the module to his/her way of work. Additionally, the aim is to give the Delegates the opportunity to conduct an open-minded written and oral formative evaluation of the training.

To successfully complete this lesson of the Sea Survival Module, Delegates must:

- Show commitment to avoid incidents requiring a rescue operation
- Participate in the formative evaluation of the module in a constructive manner

ELEMENT 10.1 Reflection session

Training Staff shall:

- 10.1.1 Give the Delegates final feedback on the formal Delegate performance assessment and inform them whether they have passed (failed Delegates must be informed individually prior to the reflection session)



- 10.1.2 Help the Delegate to do a summative self-evaluation, i.e. mentally overview and assort what is learned, identify key takeaways and bridge the gap between what is learned during the module and applying it in his/her way of work. This can be achieved e.g. by an individual reflection session, question session and/or class discussion
- 10.1.3 Re-present the overall aims and objectives of the course for the Delegates' comparison on their learning outcome and meeting of their previously stated expectations of the course
- 10.1.4 Give an overall feedback and feed forward on the Delegates' learning outcome
- 10.1.5 Encourage the Delegates to examine and grow awareness of what specific elements in their own WTG type/WTG environment differ from the training scenario environment (to visualize and enhance learning transfer) and to discuss with colleagues advanced rescue methods and techniques under the local specific conditions identified after course completion



ELEMENT 10.2 Formative evaluation

Delegates shall:

- 10.2.1 Conduct an online or written formative evaluation of the module, as a minimum.

Training Staff shall:

- 10.2.2 Respond on relevant elements of any oral feedback from the Delegates.

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

Delegates will be assessed according to the learning outcomes stated in Section 1.6 by means of direct observation and supplementary oral questions, where appropriate.

The assessment shall be conducted by practical scenarios based on the WTG environment. Each Delegate shall participate and demonstrate as detailed in:

- (1) Section 1.6 - Elements 6.1, 6.2, 6.3 and 6.4 (recommended these elements are combined into one cohesive scenario as described in element 6.6)
- (2) Section 1.6 - Elements 9.1, 9.2, and 9.3

The formal evaluation of knowledge of above scenarios shall be in accordance with the Control Measures Form (template provided as Annex 1). The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module.).

Training Providers shall have a documented procedure in place for dealing with Delegates not meeting the stated learning outcomes. If a Delegate fails to meet the demands, they shall attend a new BST Sea Survival Module.



ANNEX 1: CONTROL MEASURES FORM (TEMPLATE)

Delegate full name as in passport	
Delegate WINDA ID	
Course module	
Date of completion	

Scenario Organisation	Violation of Assessment Measures			0-2 passed/ 3 failed	Instructor Remarks
Aware of personal and group safety at all times					
Organises and utilises correct equipment for given scenario					
Organises individuals and groups as required					
Scenario Management					
Establishes and maintains control of the exercise scenario at all times					
Fully participates in the exercise scenario					
Follows instructions when required					



Demonstrates correct and safe Manual Handling in exercise scenario						
Knowledge and Understanding						
Applies subject knowledge correctly in given scenario						
Demonstrates understanding of subject						
Total Marks 0-9 Pass 10-27 Fail					PASS: <input type="checkbox"/>	FAIL: <input type="checkbox"/>
Instructor Name (in CAPITAL letters)						
Instructor Signature						
Training provider						



ANNEX 2: MEDICAL SELF-ASSESSMENT FORM (TEMPLATE)

YOUR PERSONAL HEALTH IS YOUR OWN RESPONSIBILITY. YOUR TRAINING PROVIDER SHALL NOT BE HELD RESPONSIBLE FOR ANY ILLNESS WHATSOEVER DURING OR AFTER THE TRAINING.

I hereby confirm that I have read and understood the listed risks and potentially life-threatening medical conditions and that I am physically and medically fit to participate in GWO Training.

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training. I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training. Should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Name as in passport	
Delegate WINDA ID	
Course module	
Signature and date	

The following conditions could pose a risk, when you participate in GWO training
<ul style="list-style-type: none"> • Asthma or other respiratory disorders • Epilepsy, blackouts or other fits • Angina or other heart complaints • Vertigo or inner ear problems (difficulty with balance) • Claustrophobia/Acrophobia (fear of enclosed area/height) • Blood pressure disorder • Diabetes • Pacemaker or implanted defibrillator • Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility • Known allergies (E.g. bee, wasps or spider stings / bites) • Recent surgery • Any other medical condition or medication dependency that could affect climbing or physical impact of climbing



ANNEX 3: MANUAL HANDLING RISK ASSESSMENT

This is an instructor guidance elaborating the concept of aggravating factors related to manual handling risk assessment.

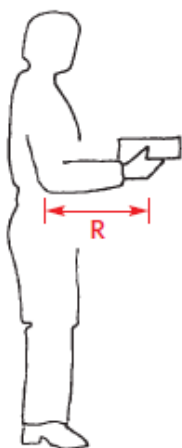
The baseline of assessing manual lifts is the load weight and the distance from the spine in the lower back (the reaching distance), respectively. The assessment chart below will assist you appraising manual handling.

While assessing manual handling, a number of additional risk factors to the lift must be considered; which, individually and especially combined, will enhance the strain on the muscular- skeletal system. These factors are the so-called aggravating factors.

Prior to delivering the Manual Handling Module, instructors should review local instructions and risks assessments for the tasks planned, including assessment of whether a given task should be solved by the Delegates by using a handling aid?

Load weight and Reaching distance

The load weight compared to the reaching distance (R) indicates the gross strain on the lifting persons back.

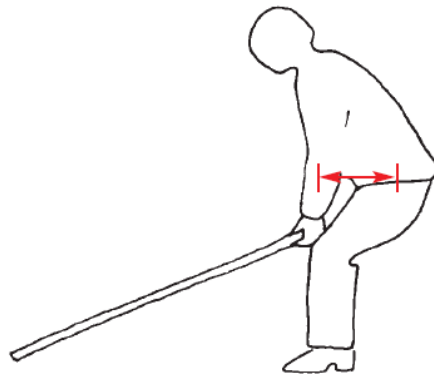


It must be taken into consideration when the person performing the lift is carrying only a part of the load, e.g. when the load is tipped onto one end and partly resting on the ground or when the lift is performed by more than one person.

The assessment chart below guides you to evaluate and determine whether the strain on the muscular- skeletal system is harmful to health and control measures must be taken.

The reaching distance is illustrated by (R) in the diagram to the left. The diagram represents (R) as the lateral distance between the center of gravity of the load and the lifting persons lower back (the spinal column of the lumbar curve). The center of gravity of the load is usually found right between the handle points of the load.

When the load is tipped and partly resting on the ground or when the lift is performed by more than one person, the reaching distance is measured from the lifting persons lower back (the spinal column of the lumbar curve) to a line between the handle points of the load.



When assessing manual handling, the *most excessive* reaching distance during the *entire operation* must be used in the assessment chart. The most excessive reaching distance is commonly found in the initial or ending part of the lifting operation (putting down the load).

Two different reaching distances are indicated in the assessment chart:

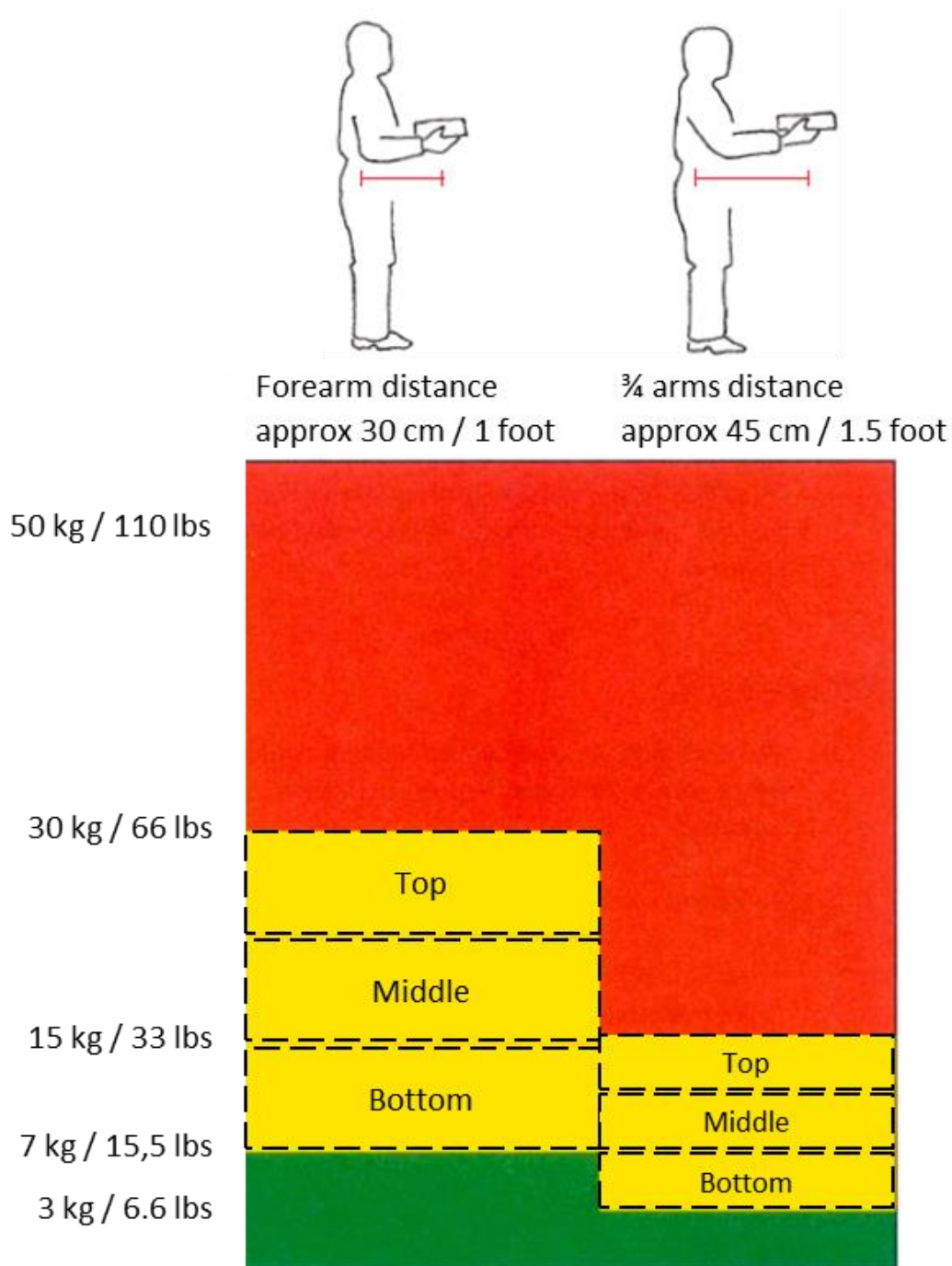
- Forearm distance (approx. 30 cm / 1 foot from the spinal column of the lumbar curve)
- $\frac{3}{4}$ arms distance (approx. 45 cm / 1.5 foot from the spinal column of the lumbar curve)

Note: In most cases load lifting close to the body equals forearm distance. Shorter reaching distance (i.e. lifting closer to the spinal column than forearm distance) is thus only achievable when using personal moving equipment (moving straps for lifting or the like).

In the assessment chart, reaching distances above $\frac{3}{4}$ arm's distance is not included since they will most likely be harmful to health, and must be evaluated separately.



Manual handling assessment chart (MAC tool) – evaluating the load weight compared to the reaching distance



Red area: Lifting within the red area is without doubt harmful to health and must be avoided. To reduce the risk of injury control measures must be taken.



Yellow area: Lifting within the yellow area requires a detailed evaluation of the aggravating factors. They must be considered to evaluate to what extent they enhance the strain on the muscular- skeletal system resulting in manual handling which is harmful to health.

When lifting within the **top most** $\frac{1}{3}$ part of the yellow area, manual handling is only accepted if it is performed under optimal conditions (i.e. the entire lifting operation is performed centered in front of the body, the lift is performed between mid-thigh and elbow height, the load is intended for manual handling, each lift is followed by a two-minute rest, the load is not carried, the foothold is stable, and the climate is appropriate).

Lifting within the **middle** $\frac{1}{3}$ part of the yellow area, the amount and degree of aggravating factors determine whether the manual handling is harmful to health – and to what extent it is harmful.

Lifting within the **bottom** $\frac{1}{3}$ part of the yellow area, it usually requires several aggravating factors for the manual handling to be harmful to health. In some cases, one single aggravating factor, e.g. the working posture, may cause lifting within the bottom $\frac{1}{3}$ part of the yellow area to be harmful to health.

Green area: Lifting within the green area is usually not harmful to health based on the load weight and reaching distance.

There may be additional risk factors, which are individually harmful, causing the manual handling to be harmful to health, e.g. poor working postures, a high lifting frequency, or an excessive overall strain on the body.

Aggravating factors

The aggravating factors of the lifting operation must be considered which, individually and especially in combination, will enhance the strain on the muscular- skeletal system posing a risk of injury and manual handling harmful to health.

Examples of aggravating factors - categorized related to the four elements of the **T.I.L.E** principle:

Concerning the **Task**

No suitable handling aid available, stooping/bending, twisting, stooping/bending *and* twisting, lifting below knee height or above shoulder height, carrying, pushing, pulling or precise positioning of the load, sudden movement or stop, lifting for a longer period



of time, high pace of work, inadequate rest or recovery periods, asymmetric or one handed lifting, team handling¹, seated or kneeling position, or lack of planning.

Concerning the **Individual**

No warm-up, capability, previous and pre-existing injuries, unusual strength or height required for the activity, specialist knowledge or training required, uneven height of team handling individuals.

Concerning the **Load**

Unwieldy, difficult to grasp, difficult to grip, sharp edges, contents likely to move or shift, hot or cold.

Concerning the **Environment**

Transport route or floors uneven, slippery, unstable or with obstacles or steps, variations in floor levels, stairs, space constraints, draft, hot, cold or humid conditions, poor lighting, poor ventilation, rain, gusty winds, clothing or PPE that restricts movement, vibrating environment before manual handling.

Source of reference

This annex is based upon the legal requirements and guidelines of the Danish and UK EHS authorities and legislation on manual handling.

Local legal requirements must always be adhered to when performing manual handling.

¹ *Team handling is in general not a legitimate substitution for using handling aids.*