1 LIST OF ABBREVIATIONS ............................................................................................................. 5
2 TERMS AND DEFINITIONS ........................................................................................................... 6
3 CHANGE LOG ................................................................................................................................. 7
4 SCOPE ............................................................................................................................................. 8
  4.1 Target group .............................................................................................................................. 9
  4.2 Aims and objectives ................................................................................................................. 9
  4.3 Requirements for training providers ...................................................................................... 9
  4.4 Duration of the BSTR-P Modules .......................................................................................... 10
  4.5 Validity period ....................................................................................................................... 11
  4.6 Participant prerequisites for the BSTR-P Modules ................................................................. 11
  4.7 Physical demands ................................................................................................................... 11
5 RESOURCES REQUIRED TO DELIVER ONLINE BSTR-P MODULES ...................................... 12
  5.1 Staff ......................................................................................................................................... 12
  5.2 Equipment for online delivery ............................................................................................. 12
  5.3 Practical training facilities ..................................................................................................... 12
6 ADMINISTRATION AND CERTIFICATION OF BSTR-P MODULES ........................................... 13
  6.1 Requirement to upload training record in WINDA ............................................................. 13
  6.2 Training providers own records and certificates issue ....................................................... 13
7 UNDERSTANDING GWO LEARNING OBJECTIVES ................................................................... 14
  7.1 Taxonomy .............................................................................................................................. 14
  7.2 Attitude .................................................................................................................................. 14
  7.3 Knowledge ............................................................................................................................ 15
  7.4 Skill ......................................................................................................................................... 15
8 DELIVERY AND ASSESSMENT IN A VIRTUAL CLASS ENVIRONMENT ................................. 16
  8.1 Aims and objectives ............................................................................................................... 16
  8.2 Course participant engagement ............................................................................................ 16
  8.3 Operationalising this standard .............................................................................................. 17
  8.4 Equipment in the virtual classroom ...................................................................................... 17
  8.5 Assessment of learning objectives ........................................................................................ 17
  8.6 Participant performance assessment form ............................................................................ 18
9 BSTR-P MODULE 1 – FIRST AID ............................................................................................... 20
  9.1 Aims and objectives of the BSTR-P First aid module .......................................................... 20
  9.2 BSTR-P First aid instructor to participant ratio .................................................................... 21
  9.3 Duration of the BSTR-P First aid module ............................................................................ 21
  9.4 BSTR-P First aid module timetable ..................................................................................... 21
  9.5 Detailed description of the BSTR-P First aid module ............................................................ 23
    Lesson 1 - Introduction ............................................................................................................. 23
    Lesson 2 - Legislation, Risks and Hazards ............................................................................. 25
    Lesson 3 - Anatomy ................................................................................................................. 26
    Lesson 4 - Lifesaving First Aid using Primary and Secondary Survey ..................................... 28
    Lesson 5 - Themes .................................................................................................................... 32
    Lesson 6 - First aid scenarios .................................................................................................. 37
    Lesson 7 - Evaluation ............................................................................................................... 39
10 BSTR-P MODULE 2 - MANUAL HANDLING ............................................................................. 41
10.1 Aims and objectives of the BSTR-P Manual handling module ............................................... 41
10.2 BSTR-P Manual handling instructor to participant ratio ...................................................... 42
10.3 Duration of the BSTR-P Manual handling module ............................................................. 42
10.4 BSTR-P Manual handling module timetable ..................................................................... 42
10.5 Detailed description of the BST Manual Handling Module .................................................. 44
    Lesson 1 - Introduction ........................................................................................................... 44
    Lesson 2 - Legislation and behavioural safety ................................................................. 46
    Lesson 3 - Spinal Anatomy and Posture ............................................................................ 47
    Lesson 4 - Planning manual handling .............................................................................. 48
    Lesson 5 - Manual handling: Risk controls & proper manual handling techniques .......... 50
    Lesson 6 - Evaluation ......................................................................................................... 53
11  BSTR-P MODULE 3 - FIRE AWARENESS ............................................................................ 55
11.1 Aims and objectives of BSTR-P Fire awareness module ...................................................... 55
11.2 BSTR-P Fire awareness instructor to participant ratio ...................................................... 56
11.3 Duration of BSTR-P Fire awareness module .................................................................. 56
11.4 BSTR-P Fire awareness module timetable ....................................................................... 56
11.5 Detailed description of BST Fire Awareness Module ........................................................ 58
    Lesson 1 - Introduction ........................................................................................................ 58
    Lesson 2 - Legislation ......................................................................................................... 60
    Lesson 3 - Fire combustion and fire spread ...................................................................... 61
    Lesson 4 - Fire extinguishing ............................................................................................ 62
    Lesson 5 - Fire prevention ................................................................................................ 64
    Lesson 6 - Firefighting equipment in a WTG ................................................................. 65
    Lesson 7 - Evaluation ......................................................................................................... 67
12  BSTR-P MODULE 4 - WORKING AT HEIGHTS ................................................................. 69
12.1 Aims and objectives of the BSTR-P Working at heights module ........................................... 69
12.2 BSTR-P Working at heights instructor to participant ratio .................................................. 70
12.3 Duration of the BSTR-P Working at heights module ......................................................... 70
12.4 BSTR-P Working at heights module timetable ................................................................. 70
12.5 Detailed description of the BSTR-P Working at heights module ........................................... 72
    Lesson 1 - Introduction ........................................................................................................ 72
    Lesson 2 - Knowledge review ............................................................................................ 74
    Lesson 3 - Dropped objects .............................................................................................. 75
    Lesson 4 - PPE Review Exercises .................................................................................... 76
    Lesson 5 - Theory ............................................................................................................... 77
    Lesson 6 - Individual Practical review exercises ............................................................. 80
    Lesson 7 - Evaluation ......................................................................................................... 82
13  BSTR-P MODULE 5 -SEA SURVIVAL ............................................................................... 84
13.1 Aims and objectives of the BSTR-P Sea survival module ...................................................... 84
13.2 Instructor to participant ratio ............................................................................................. 85
13.3 Duration of the BSTR-P Sea survival module ..................................................................... 85
13.4 BSTR-P Fire awareness module timetable ........................................................................ 85
13.5 Detailed description of BSTR-P sea survival module ......................................................... 87
    Lesson 1 - Introduction ........................................................................................................ 87

Global Wind Organisation
www.globalwindsafety.org

3 / 116
Lesson 2 - Legislation .................................................................................................................................................. 88
Lesson 3 - Exposure, Cold Shock, Hypothermia and Drowning ....................................................................................... 89
Lesson 4 - Life Saving Appliances and PPE .................................................................................................................. 90
Lesson 5 - SAR and GMDSS ........................................................................................................................................... 92
Lesson 6 - Practical sea survival ..................................................................................................................................... 93
Lesson 7 - Safe transfer ..................................................................................................................................................... 96
Lesson 8 - Installations, vessels and WTGs .................................................................................................................... 99
Lesson 9 - Evaluation ....................................................................................................................................................... 100

ANNEX 1 - PARTICIPANT PERFORMANCE ASSESSMENT FORM ................................................................................. 102

ANNEX 2 - EQUIPMENT LISTS ......................................................................................................................................... 103
1. BSTR-P First aid Partial refresher .............................................................................................................................. 104
2. BSTR-P Manual Handling Partial Refresher ............................................................................................................... 105
3. BSTR-P Fire awareness partial refresher ..................................................................................................................... 106
4. BSTR-P Working at height partial refresher ................................................................................................................ 107
5. BSTR-P Sea Survival partial refresher ......................................................................................................................... 110

ANNEX 3 - GUIDELINE FOR WARM-UP EXERCISES ................................................................................................... 112

ANNEX 4 - MANUAL HANDLING RISK ASSESSMENT ................................................................................................. 113
1. Load weight and Reaching distance ........................................................................................................................ 113
2. Manual handling assessment chart (MAC tool) ......................................................................................................... 115
3. Aggravating factors ....................................................................................................................................................... 116
# 1 List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AED</td>
<td>Automatic External Defibrillator</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>AS/NZS</td>
<td>Australia and New Zealand Standard</td>
</tr>
<tr>
<td>BST</td>
<td>Basic Safety Training</td>
</tr>
<tr>
<td>BSTR</td>
<td>Basic Safety Training Refresher</td>
</tr>
<tr>
<td>BWH</td>
<td>Basic Working at Height</td>
</tr>
<tr>
<td>CO₂</td>
<td>Carbon Dioxide</td>
</tr>
<tr>
<td>CPR</td>
<td>Cardiopulmonary Resuscitation</td>
</tr>
<tr>
<td>CSA</td>
<td>Canadian Standards Association</td>
</tr>
<tr>
<td>EN</td>
<td>European Standards</td>
</tr>
<tr>
<td>EPIRB</td>
<td>Emergency Position Indicating Radio Beacon</td>
</tr>
<tr>
<td>ERC</td>
<td>European Resuscitation Council</td>
</tr>
<tr>
<td>GWO</td>
<td>Global Wind Organisation</td>
</tr>
<tr>
<td>GMDSS</td>
<td>Global Maritime Distress and Safety System</td>
</tr>
<tr>
<td>H.E.L.P.</td>
<td>Heat Escape Lessening Posture</td>
</tr>
<tr>
<td>ILCOR</td>
<td>International Liaison Committee on Resuscitation</td>
</tr>
<tr>
<td>LSA</td>
<td>Life Saving Appliances</td>
</tr>
<tr>
<td>PLB</td>
<td>Personal Locating Beacon</td>
</tr>
<tr>
<td>MES</td>
<td>Marine Evacuation Systems</td>
</tr>
<tr>
<td>MOB</td>
<td>Man Overboard</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>PTSD</td>
<td>Post-Traumatic Stress Disorder</td>
</tr>
<tr>
<td>SAR</td>
<td>Search and Rescue</td>
</tr>
<tr>
<td>SART</td>
<td>Search and Rescue Transponder</td>
</tr>
<tr>
<td>SRL</td>
<td>Self-Retractable Lifeline</td>
</tr>
<tr>
<td>T.I.L.E.</td>
<td>Task Individual Load Environment</td>
</tr>
<tr>
<td>MAC</td>
<td>Manual handling Assessment Chart</td>
</tr>
<tr>
<td>WTG</td>
<td>Wind Turbine Generator</td>
</tr>
</tbody>
</table>

Global Wind Organisation
www.globalwindsafety.org

5 / 116
## Terms and Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shall</td>
<td>Verbal form used to indicate requirements strictly to be followed in order to conform to this training standard and from which no deviation is permitted</td>
</tr>
<tr>
<td>Must</td>
<td>For clarity where the word must is used in this standard it shall have the same meaning as shall</td>
</tr>
<tr>
<td>Should</td>
<td>Verbal form used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required</td>
</tr>
<tr>
<td>Fall arrest</td>
<td>Preventing the user of a personal fall protection system from colliding with the ground, structure or any other obstacle during a free fall.</td>
</tr>
<tr>
<td>Fall prevention</td>
<td>Preventing the user of a personal fall protection system from going into a free fall</td>
</tr>
<tr>
<td>Personal fall protection system</td>
<td>Assembly of components intended to protect the user against falls from height, including a body holding device and an attachment system, which can be connected to a reliable anchorage point</td>
</tr>
<tr>
<td>Restraint system</td>
<td>Personal fall protection system which prevents the user from reaching zones where the risk of a fall from height exists</td>
</tr>
<tr>
<td>Work positioning system</td>
<td>Personal fall protection system which enables the user to work in tension or suspension in such a way that free fall is prevented</td>
</tr>
<tr>
<td>Fall arrest system</td>
<td>Personal fall protection system which limits the impact force on the body of the user during fall arrest</td>
</tr>
<tr>
<td>Rescue system</td>
<td>Personal fall protection system by which a person can rescue themselves or others, in such a way that a free fall is prevented</td>
</tr>
</tbody>
</table>
3 CHANGE LOG

<table>
<thead>
<tr>
<th>Amendment Date</th>
<th>11 May 2020</th>
<th>Approved by &amp; date</th>
<th>GWO EXCO 11 May 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>01.1</td>
<td>Description of changes</td>
<td></td>
</tr>
</tbody>
</table>

**BSTRP-P MODULE 4 – WORKING AT HEIGHTS**

- Element 12.1 - changed the wording of learning objective 5 to “explain” from “Skill” and updated the taxonomy of the same point to “L2 – Knowledge”

**Lesson 6 - Individual practical exercises**

- Changed all learning objectives to “Discuss and show examples of” from “demonstrate” and updated the taxonomy of the same points to “L2 – Knowledge and L2 – Skills”
- Note – Adjusted the site requirement and adjusted the equipment requirement for the participant and added a description of how the instructor must ensure that the discussion is facilitated
- Element 6.4 – updated the instructor note to focus on knowledge of the participants

**Annex 2 – EQUIPMENT LIST**

- Aligned the equipment list with the updated lesson 6 by removing the requirement for the participant to have a vertical fall arrest system, rescue device and slings at their location during the training.

<table>
<thead>
<tr>
<th>Amendment Date</th>
<th>06 April 2020</th>
<th>Approved by &amp; date</th>
<th>GWO EXCO 14 April 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>01</td>
<td>Description of changes</td>
<td></td>
</tr>
</tbody>
</table>

16 April 2020
- Minor correction regarding durations.

14 April 2020
- New training standard to address skills fade in light of SARS-CoV-2.
4 Scope

The COVID-19 viral pandemic has caused widespread disruption globally and has, in many regions, prevented technicians from attending GWO refresher training leading to a safety risk imposed through skills and knowledge fade within the wind industry.

To mitigate against the fading of skills and knowledge amongst technicians GWO have analysed the basic safety refresher modules and released this interim standard as a way for already trained technicians to continue to work safely by enabling the technicians on site to practice the knowledge and skills that they have learned during GWO training and apply this to their daily work tasks.

This analysis has indicated that there are some learning objectives and elements in the domain of knowledge and skills where the knowledge fade can potentially be mitigated through attending online live training sessions.

This standard describes the requirements for basic safety training partial refresher courses that are recommended by the members of GWO. This full standard covers parts of the following five modules:

1) First Aid
2) Manual Handling
3) Fire Awareness
4) Working at Height
5) Sea Survival

GWO has assessed that the objectives and elements contained in the partial modules, as described in sections 9, 10, 11, 12 & 13 of this document, can be fully delivered during online training sessions using technologies that allow real time video conferencing.

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.

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 executive committee.
4.1 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 perform job functions that has been risk assessed by their employer or their workplace duty holder as a function where knowledge of and practical skills in first aid, manual handling, fire awareness, working at heights and sea survival may mitigate the identified risks.

4.2 Aims and objectives

The aim of BSTR-P is to reduce the risk of injury in the wind industry by reviewing, refreshing and building on previously gained knowledge and skills from GWO BST initial or refresher training.

The aims and objectives are achieved in a virtual online classroom through a combination of group discussions, individual explanations, theoretical and practical training that aim to enable the course participants to support and care for themselves and others working in the wind industry by being able to apply the knowledge skills and attitude of first aid, manual handling, fire awareness, working at heights and sea survival in their daily work and, in the case of an emergency, be able to evacuate, rescue and provide appropriate first aid to casualties.

4.3 Requirements for training providers

1) The GWO BSTR-P standard sets out minimum requirements.

2) 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.

3) To deliver any of the BSTR-P modules set forth in this standard the training provider shall already be certified and approved to deliver the equivalent full GWO BST and BSTR module(s).

4) The training provider shall at all times conform with the current GWO criteria / requirements for training providers.

5) Provided the minimum requirements of the BSTR-P are met the training provider may choose to incorporate delivery of other similar certified training.
4.4 Duration of the BSTR-P Modules

The total contact time for completing all modules in this partial basic safety training refresher standard is estimated to be **16 hours** at the maximum instructor to participant ratio. This is based on the time estimates given in the module timetables and summarised in table 4-41 below.

During delivery of the modules in this standard the training provider shall;

1) not exceed the times per day given in table 4-42 below, and,
2) ensure that sufficient time is allowed for,

   a. the instructor to fully cover the elements stated in each module, and,
   b. for participants to reach the learning objectives stated in the modules, and,
   c. for participants to share their experiences related to the modules of the BSTR-P standard in a way that is constructive for the entire class.

<table>
<thead>
<tr>
<th>Module</th>
<th>Ratios</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory</td>
<td>Practical</td>
</tr>
<tr>
<td>First Aid Refresher</td>
<td>1:12</td>
<td>1:12</td>
</tr>
<tr>
<td>Manual Handling Refresher</td>
<td>1:12</td>
<td>1:6</td>
</tr>
<tr>
<td>Fire Awareness Refresher</td>
<td>1:12</td>
<td>1:6</td>
</tr>
<tr>
<td>Working at Heights Refresher</td>
<td>1:12</td>
<td>1:6</td>
</tr>
<tr>
<td>Sea Survival Refresher</td>
<td>1:12</td>
<td>1:6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Table 4-41 - GWO BSTR-P Module ratios & durations*

**Note:** The time estimates in table 4-41 are based on the maximum instructor to participant ratio.

<table>
<thead>
<tr>
<th></th>
<th>Maximum duration per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact time</td>
<td>8 hours</td>
</tr>
<tr>
<td>Total training day</td>
<td>10 hours</td>
</tr>
</tbody>
</table>

*Table 4-42 - Maximum durations for training days*

**Note:** Contact time includes delivery of course lesson contents, practical exercises and activities directly related to these.

The total training day includes contact time, meals and breaks and travel between training sites (where applicable).
4.5 Validity period

Successful completion of the BSTR-P modules will allow the course participants to extend the validity of their existing GWO BST or BSTR certificate by 6 months.

<table>
<thead>
<tr>
<th>Modules</th>
<th>Certificate Validity Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Aid Refresher</td>
<td>Existing expiry date + 6 months</td>
</tr>
<tr>
<td>Manual Handling Refresher</td>
<td>Existing expiry date + 6 months</td>
</tr>
<tr>
<td>Fire Awareness Refresher</td>
<td>Existing expiry date + 6 months</td>
</tr>
<tr>
<td>Working at Heights Refresher</td>
<td>Existing expiry date + 6 months</td>
</tr>
<tr>
<td>Sea Survival Refresher</td>
<td>Existing expiry date + 6 months</td>
</tr>
</tbody>
</table>

Table 4-5 - GWO BSTR-P modules certificate validity periods

4.6 Participant prerequisites for the BSTR-P Modules

The course participants shall have a personal course participant (delegate) profile in WINDA and provide their own WINDA ID prior to completing the BSTR-P training.

Course participants shall possess valid GWO BST or GWO BSTR certificates or training records in WINDA for the relevant modules prior to attending BSTR-P training.

4.7 Physical demands

BSTR-P Modules may potentially be physically demanding.

Note: Practical exercises shall be designed and delivered solely to meet this standard and shall not place any physical or mental demands on the participants other than those required to meet this standard.
5 RESOURCES REQUIRED TO DELIVER ONLINE BSTR-P MODULES

The training provider shall ensure that staff, facilities and equipment are in place for the BSTR-P module.

5.1 Staff

Training Staff shall possess appropriate qualifications and experience as detailed in GWO BSTR_V10 and the GWO training provider criteria / requirements and current legislation.

In addition to the requirements in GWO BSTR-V10, the instructor shall:

1) Be proficient in the delivery of training and the assessment of participants knowledge and skills in a virtual online classroom environment.

5.2 Equipment for online delivery

The following list is intended as a guide of the equipment required for delivery of the modules within this standard in an online classroom environment, this list is not exhaustive;

1) An internet connection with sufficient bandwidth and speed to allow two way video conferencing
2) Web camera
3) External microphone to provide better sound quality for the participants
4) Software that will support two way video communication

5.3 Practical training facilities

During practical demonstrations the instructor can use existing facilities to deliver the practical demonstrations.

When using existing facilities consideration must be given to enabling each participant who is online to see the demonstration and hear taught subject matter.

Practical training facilities shall comply with the requirements of GWO BSTR_V10 and the GWO training provider criteria / requirements and current legislation.
6 ADMINISTRATION AND CERTIFICATION OF BSTR-P MODULES

6.1 Requirement to upload training record in WINDA

Training Providers are responsible for uploading a record of training to WINDA. 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) Course participant’s WINDA ID
2) Course code
3) Course completion date
4) Previous certificate valid until date

Course codes:

<table>
<thead>
<tr>
<th>Module</th>
<th>Course code</th>
</tr>
</thead>
<tbody>
<tr>
<td>First aid partial refresher</td>
<td>FAR-P</td>
</tr>
<tr>
<td>Manual handling partial refresher</td>
<td>MHR-P</td>
</tr>
<tr>
<td>Fire awareness partial refresher</td>
<td>FAWR-P</td>
</tr>
<tr>
<td>Working at heights partial refresher</td>
<td>WAHR-P</td>
</tr>
<tr>
<td>Sea survival partial refresher</td>
<td>SSR-P</td>
</tr>
</tbody>
</table>

Table 6-1 - GWO BSTR-P Module course codes

6.2 Training providers own records and certificates issue

The Training provider shall in accordance with the criteria for training providers maintain their own records of course participants.

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 by name.

Training providers may issue other additional proof of training like paper certificates or plastic cards. If the training provider chooses to do so, it is recommended (not a requirement) to include the delegate WINDA id.
7 UNDERSTANDING GWO LEARNING OBJECTIVES

7.1 Taxonomy

To formulate a measurable learning objective, taxonomy is used to describe the level of expected learning outcome within the learning domains of knowledge, skill and attitude.

As an example, belonging to the learning domain of knowledge, to have a participant *name* or *describe* something, as opposed to have them *explain* it in their own words, or even *apply* or *demonstrate* what they have learned – describes different performance levels, i.e. different taxonomy levels.

Taxonomy action verbs and levels used in this GWO standard are based on the following:

<table>
<thead>
<tr>
<th>Domain</th>
<th>Basis</th>
<th>GWO Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>Krathwohl’s “affective taxonomy”</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>- Attitude and feelings to the learning</td>
<td></td>
</tr>
<tr>
<td>Skill</td>
<td>Simpson’s “psychomotor taxonomy”</td>
<td>2 3</td>
</tr>
<tr>
<td></td>
<td>- Physical skills, cognitive controlled and observable</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Bloom’s “cognitive taxonomy”</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td>- Intellectual knowledge, mental skills and procedures</td>
<td></td>
</tr>
</tbody>
</table>

*Table 7-1 - Taxonomical domains & levels used by GWO*

**Note:** Higher taxonomy levels exist.

7.2 Attitude

<table>
<thead>
<tr>
<th>Level</th>
<th>Action verb</th>
<th>Expected behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Value</td>
<td>Demonstrates belief in a process, procedure or set of rules.</td>
</tr>
</tbody>
</table>

**Specific examples**

**Value:**

- The instructor should present the topic in a positive way. For example, the principle of performing tasks in a safe manner.
- The participant demonstrates through their attitude to a task that they value the process or the rules and procedures behind the task. For example, the delegate will actively seek and use protective gloves in a given work situation.

*Table 7-2 - GWO levels, action verbs & expected outcomes in the learning domain of attitude*
7.3 Knowledge

<table>
<thead>
<tr>
<th>Level</th>
<th>Action verb</th>
<th>Expected behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Describe</td>
<td>Memory of facts, terminology, rules, sequences, procedures etc.</td>
</tr>
<tr>
<td>1</td>
<td>Recall</td>
<td>Remember short lists (e.g. contents of a rescue kit)</td>
</tr>
<tr>
<td>2</td>
<td>Explain</td>
<td>Demonstrating understanding of a topic.</td>
</tr>
<tr>
<td>2</td>
<td>Discuss</td>
<td>Actively participates in discussions</td>
</tr>
</tbody>
</table>

Specific examples

**Describe:** The instructor should present the topic at a basic, introductory level. This could be, for example, presenting the terminology used for a type of equipment, or a simple set of rules for an activity.

The participant can answer simple questions about the topic, this could be by answering multiple choice questions.

**Explain:** The instructor should present the topic at a more advanced level. This could be, for example, an explanation of how a piece of equipment or a tool works.

The participant can answer in-depth questions about the topic, this could be by answering short answer questions or open questions posed by the instructor.

**Discuss:** The instructor should initiate a group discussion by asking an open question to the group and inviting the group to discuss the question. The instructor should ensure that all the group are actively engaged in the discussion.

The participant will actively participate in the group discussion offering input and questioning input from other group members.

*Table 7-3 - GWO levels, action verbs & expected outcomes in the learning domain of knowledge*

7.4 Skill

<table>
<thead>
<tr>
<th>Level</th>
<th>Action verb</th>
<th>Expected behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Perform</td>
<td>Carry out tasks from verbal or written instructions.</td>
</tr>
<tr>
<td>3</td>
<td>Demonstrate</td>
<td>To be able to demonstrate an ability to perform a task with minimal or without verbal or written instructions.</td>
</tr>
<tr>
<td>3</td>
<td>Apply</td>
<td>Demonstrating understanding of a topic.</td>
</tr>
</tbody>
</table>

Specific examples

**Perform:** The instructor should explain the activity and give the delegates the required work instructions to be able to perform the activity.

The participant can perform a task by following a set of written instructions.

**Demonstrate:** The instructor must demonstrate the activity and provide support to the delegate to enable them to be able to demonstrate the ability to complete the activity.

The participant can perform a task with minimal or no support form a document or the instructor.

**Apply:** The participant can use knowledge gained during theoretical or practical training on a similar type of equipment.

*Table 7-4 - GWO levels, action verbs & expected outcomes in the learning domain of skill*
8 DELIVERY AND ASSESSMENT IN A VIRTUAL CLASS ENVIRONMENT

8.1 Aims and objectives

The aims of the partial refresher modules described in this document are to reduce the risks of injury arising from knowledge and skills fade in the wind industry. Furthermore, this training will enable the course participants to provide evidence that they have undergone training to refresh key knowledge and skills with the aim that they can apply the knowledge to other skills.

With this aim in mind it is important that the instructors who deliver these modules encourage the participants to reflect on how this knowledge can be applied in their daily work situation as well as in emergency situations like first aid scenarios, a fire, the rescue of a colleague or a sea survival situation in a wind turbine or the wind industry.

8.2 Course participant engagement

Delivering training in the virtual classroom environment differs from traditional in person delivery in many ways one of the challenges inherent in this type of training is the involvement and engagement of the participants in the training.

In the lesson elements there are more group discussions than in other GWO training standards and this is to encourage interaction between the instructor and the participants and between the participants with the aim that the participants be involved with and engaged in the training thereby increasing their motivation and learning retention.

Where the lesson elements do not specifically state that the instructor shall lead a discussion, it is recommended that the instructor uses the flipped classroom technique to engage and encourage the participants to learn through self-discovery.

In some elements it is stated that the instructor must show an example of something or demonstrate a skill, wherever possible and safe this should be a live demonstration with physical examples of the equipment being shown or demonstrated. In these cases, it is recommended that the participants be encouraged, to the extent possible, to talk the instructor through the skill being demonstrated.

Training material design should be carefully considered and traditional tools like slideware should be created with the specific aim of supporting the instructor rather than as the main delivery tool for the lesson. During the training session the instructor should consider the benefits of live video conferencing as a means of training delivery and a more human interaction for the participants.

Even with increased interaction between instructors and participants and the above recommendations, long periods of online training can be particularly draining for both. It is therefore recommended that the instructor schedules frequent short breaks into the overall training session.
8.3 Operationalising this standard

In each module the lessons are laid out as follows;

<table>
<thead>
<tr>
<th>Section</th>
<th>Description and guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESSON 1 - XX</td>
<td>Name of the lesson.</td>
</tr>
<tr>
<td>XX min.</td>
<td>Expected duration of the lesson to enable the participants to reach the learning objectives.</td>
</tr>
<tr>
<td>The aims of the lesson.</td>
<td>The overall aim of the lesson.</td>
</tr>
<tr>
<td>1) Learning objectives.</td>
<td>The objectives that the participant must satisfy in order to pass the lesson.</td>
</tr>
<tr>
<td></td>
<td>These are how the instructor shall assess the participants abilities in each lesson. For clarity in this standard these are not repeated in the lesson elements.</td>
</tr>
<tr>
<td>ELEMENT 1.1 - XX</td>
<td>The name of the element. For ease of reading these are aligned with the learning objectives</td>
</tr>
<tr>
<td>1.1.1 XX</td>
<td>The actions that the instructor must take to facilitate and guide the participant to reaching the applicable learning objectives.</td>
</tr>
</tbody>
</table>

Table 8-3 – GWO BSTR-P Lesson section descriptions

8.4 Equipment in the virtual classroom

It is assumed that for the delivery of these lessons and elements that the instructor will be situated in a training facility with all the equipment that is required for delivery of the full module available.

Assessment of the participants skills requires them to have the applicable equipment available with which to demonstrate the skills. In order to facilitate this the participants should be situated on a site and this requirement must be communicated to the participant well in advance of the planned training session.

The equipment for each module is listed in annex 3 of this document.

8.5 Assessment of learning objectives

The learning objectives in each lesson are the criteria by which the instructor shall assess if the participant is capable of the stated objective. Unlike previous GWO training standards these objectives have not been repeated in the lesson elements.

In each learning objective the taxonomy action verb is highlighted in **bold** text and following each learning objective an indicator of the taxonomical level and domain has been added e.g. (L2 – Knowledge). Where doubt exists between the action verb and the taxonomy indicator the instructor should consider the indicator as correct.

Learning objectives within the domain of knowledge can be delivered and assessed in a similar way to how they would in a live, in person training session through dialogue and questions from the instructor.
Learning objectives within the domain of skill and attitude require that the course participants can demonstrate an ability in a scenario that is like a real work situation. In addition to safety aspects, demonstration by course participants involves body motor functions, spatial understanding and tactile elements. Therefore, the instructor must pay special attention to these aspects when assessing these objectives during a virtual classroom training.

Within the modules described in this document certain skill objectives have been omitted, compared to the full refresher modules, where these present a safety concern for the participants.

Other skill objectives have been included these include things like pre-use inspections of equipment and manual handling techniques which are relatively simple to assess using existing technology like web cams and smartphones.

Where these are included the instructor must assess these skills using a live video link where they can see the participant demonstrating and hear the participant explaining each step of the skill being assessed.

Where there is doubt in the instructor’s mind about the participants ability to perform the skill the instructor must ask to see the demonstration again.

8.6 Participant performance assessment form

An example course participant performance assessment form is provided in annex 1. The instructor may adapt the form to other media.

The instructor should keep an assessment form (or adaptation) for each participant until the completion or evaluation of the BSTR-P module.

The participant performance assessment form (or adaption) is a final evaluation tool for the instructors to assess participants during practical elements. It allows measurement of the number of violations regarding safety, competency, or attitude.

It shall be used as a progressive evaluation tool to discuss the performance of a participant in guiding them to success and it also serves as supporting documentation if a participant passes or fails the module. If a participant fails to meet the demands of the BSTR-P module, they shall attend a new BSTR-P module.
Basic Safety Training

**Online Partial** Refresher (BSTR-P)
(Onshore/Offshore)

Module 1 – First aid

Version 1
April 2020
9 BSTR-P MODULE 1 – FIRST AID

9.1 Aims and objectives of the BSTR-P First aid module

The aim of this BSTR-P First aid partial refresher module is to review and build on previously gained knowledge and skills from GWO BST First aid training through theoretical and practical training so that course participants can administer safe and effective first aid in the wind industry and the wind turbine environment.

This BSTR-P First aid module shall ensure that the course participants can:

1) **Explain** the importance of safely and correctly carrying out First Aid in accordance with the legislative requirements of their geographic location and according to the International Liaison Committee on Resuscitation (ILCOR) e.g. European Resuscitation Council (ERC) and American Heart Association (AHA) guidelines (L2 – Knowledge)

2) Identify and **explain** normal function, normal signs and symptoms of injuries and illness related to the human body (L2 – Knowledge)

3) **Explain** the correct order of management in emergency situations in a wind turbine work environment (L2 – knowledge)

4) **Demonstrate** correct use of First Aid equipment in First Aid scenarios (L3 – Skills)
9.2 BSTR-P First aid instructor to participant ratio

The ratio shown for theory sessions indicates the maximum number of participants that can attend the course.

The ratio shown for practical sessions indicates the maximum number of participants to be supervised by one instructor during each activity.

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
<th>Instructor to Delegate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTR-P First Aid</td>
<td>Theory</td>
<td>1:12</td>
</tr>
<tr>
<td></td>
<td>Practical</td>
<td>1:12</td>
</tr>
</tbody>
</table>

*Table 9-2 – GWO BSTR-P First aid module instructor to participant ratio*

9.3 Duration of the BSTR-P First aid module

The total contact time for completing this first aid partial refresher module is estimated to be 4 hours and 15 minutes at the instructor to participant ratio shown in table 9-2.

The training provider must ensure that sufficient time is allowed for participants to share their experiences related to first aid in a way that is constructive for the entire class.

9.4 BSTR-P First aid module timetable

The order in which the elements of this BSTR-P module is delivered may vary.

The module timetable shows the approximate expected duration of each of the lessons in the module.

The training provider may choose to deliver elements of the training according to other timetables, provided that the practical elements are not reduced in length.

Theoretical elements should be delivered during the practical exercises when feasible.
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Element</th>
<th>Approx. Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>1.1 introductions and expectations 1.2 Instructor and participant introductions 1.3 Aims, objectives and agenda 1.4 Motivation 1.5 On-going assessment</td>
</tr>
<tr>
<td>2</td>
<td>Legislation/Risks/Hazards</td>
<td>2.1 Risks and hazards 2.2 First Aid guidelines 2.3 National &amp; regional legislation</td>
</tr>
<tr>
<td>3</td>
<td>Anatomy</td>
<td>3.1 The human body’s life conditions, structure, function and signs 3.2 Anatomy, signs and symptoms of illness and injury 3.3 Use of anatomy &amp; First Aid in emergency situations</td>
</tr>
<tr>
<td>4</td>
<td>Lifesaving first aid using primary and secondary survey</td>
<td>4.1 Primary Survey 4.2 Unresponsive - Breathing 4.3 Unresponsive - Not breathing 4.4 CPR 4.5 Obstruction of airways 4.6 Bleeding - internal and external 4.7 Shock 4.8 Secondary survey</td>
</tr>
<tr>
<td>5</td>
<td>Themes</td>
<td>Choose one of the following themes for instruction: <strong>Note:</strong> The duration is based on one theme being chosen. 5.1 Theme 1: Psychological effects of First Aid 5.2 Theme 2: Sudden sickness &amp; environmental factors 5.3 Theme 3: Types of trauma 5.4 Theme 4: Incident management &amp; situational awareness 5.5 Theme 5: Complex incidents with several casualties</td>
</tr>
<tr>
<td>6</td>
<td>First aid scenarios</td>
<td>6.1 Application of first aid techniques</td>
</tr>
<tr>
<td>7</td>
<td>Evaluation</td>
<td>7.1 Reflection session 7.2 Formative evaluation</td>
</tr>
</tbody>
</table>

**GRAND TOTAL** | 255 min. |
9.5 Detailed description of the BSTR-P First aid module

The learning outcomes specified for the First Aid Module are:

**Lesson 1 - INTRODUCTION**

15 min.

The aim of this lesson is to introduce the course participants to the course, each other, the virtual classroom and what is expected of them during the course.

To successfully complete this lesson of the module each course participant shall be able to:

1) Describe how the training will be managed and their expected interactions
2) Recognize who the instructor and other participants are
3) Describe the aims, objectives and agenda of the training
4) Explain the importance and relevance of this training and their own expectations for the course
5) Explain how they will be assessed during this training

**ELEMENT 1.1 - INTRODUCTIONS AND EXPECTATIONS**

The instructor shall:

1.1.1 Explain how the online training session will be managed, covering:
   a. Instructor and participant interactions
   b. Questions and answers
   c. Participant demonstrations

**ELEMENT 1.2 - INSTRUCTOR & DELEGATE PRESENTATION**

The instructor shall:

1.2.1 Ensure that all course participants are registered with WINDA profile and have provided their WINDA ID number prior to completing the training course.

1.2.2 Give a short introduction, including their backgrounds as instructors

Each course participant shall:

1.2.3 Give a short introduction, including:
   a. Their job functions
   b. Onshore or offshore experience
   c. Length of employment in the wind industry
d. Expected primary geographic work location

1.2.4 Describe their own expectations for the course

**ELEMENT 1.3 - AIMS, OBJECTIVES AND AGENDA**

The instructor shall:

1.3.1 Explain the overall aims & objectives of this module
1.3.2 Show the agenda of the training including breaks

**ELEMENT 1.4 - MOTIVATION**

The instructor shall:

1.4.1 Explain the relevance of this module and why first aid preparedness and skills are relevant
1.4.2 Explain the importance of personal involvement in the course
1.4.3 Describe how the course participants will be challenged, and why

**ELEMENT 1.5 - ONGOING ASSESSMENT**

The instructor shall:

1.5.1 Explain the reasons for the on-going assessment
1.5.2 Explain how the course participants will be assessed during the training including the GWO participant assessment form and its use
1.5.3 Explain what is expected of the course participants
Lesson 2 - LEGISLATION, RISKS AND HAZARDS

15 min.

The aim of this lesson is to refresh and increase the course participants previously acquired knowledge of the relevant legislation/risks/hazards and demands of first aid in order to improve their awareness of the roles, responsibilities and rules that apply to first aid.

To successfully complete this lesson each course participant shall be able to:

1) **Explain** the risks and hazards relating to first aid in a wind turbine environment (L2 – Knowledge)
2) **Describe** national legislation relevant to first aid (L2 – Knowledge)
3) **Explain** different first aid guidelines – ILCOR e.g. ERC and AHA (L2 – Knowledge)
4) **Describe** global legislation relevant to First Aid (L2 – Knowledge)

**ELEMENT 2.1 - RISK AND HAZARDS**

The instructor shall:

2.1.1 Lead a discussion about the risks and hazards involved in an incident relevant for job functions within the wind industry both onshore and offshore. The discussion should be based on the participants practical experiences since their previous first aid training

**ELEMENT 2.2 - FIRST AID GUIDELINES**

The instructor shall:

2.2.1 Explain how recent changes and updates to guidelines from ILCOR e.g. ERC and AHA* affect how first aid is delivered

**Note:** Where ERC, AHA and other first aid guidelines have changed the delivery of first aid, these changes shall be discussed during the relevant part of this BSTR-P First aid partial refresher module.

**ELEMENT 2.3 - NATIONAL AND REGIONAL LEGISLATION**

The instructor shall:

2.3.1 Explain recent changes and updates to national and regional legislation, legal requirements and legal responsibilities
2.3.2 Lead a discussion about how changes to regional legislation affects the responsibilities of the first aider
2.3.3 Explain recent changes and updates to the role of first aid in the wind industry

Global Wind Organisation
www.globalwindsafety.org
ELEMENT 2.4 - GLOBAL LEGISLATION

The instructor shall:

2.4.1 Lead a discussion to refresh site organisation and types of units on a site and using of the course participants personal practical experiences

2.4.2 Explain recent changes/updates to global legislation (Differences in national regulations between countries)

2.4.3 Explain recent changes/updates to global legal responsibilities

Lesson 3 - ANATOMY

60 min.

The aim of this lesson is to refresh and increase the course participants previously acquired knowledge and skills regarding the human body. Course participants will be able to identify and explain normal bodily function, signs, symptoms and functions of injuries and illnesses related to the human body.

To successfully complete this lesson each course participant shall be able to:

1) **Describe** the human body’s life conditions, structures, functions and signs (L1 – Knowledge)

2) **Explain** how to detect abnormal signs, symptoms and functions of injuries (L2 – Knowledge)

3) **Explain** how to detect abnormal signs, symptoms and functions of illness related to the human body (L2 – Knowledge)

4) **Explain** how knowledge of anatomy and first aid can be used to assess a casualty in emergency situations (L2 – Knowledge)

**Note:** To reach the learning objectives 2 and 3 the participants must cover the topics in element 3.2

ELEMENT 3.1 - THE HUMAN BODY’S LIFE CONDITIONS, STRUCTURES, FUNCTIONS AND SIGNS

The instructor shall:

3.1.1 Lead a discussion about the normal life conditions for the human body, covering the following:

   a. Human cells and life conditions
   b. Cells and oxygen (O₂)
   c. Cells and carbon dioxide (CO₂)
   d. Vital organs and their needs
3.1.2 Lead a discussion about the vital systems of the human body

**ELEMENT 3.2 - ANATOMY, SIGNS & SYMPTOMS OF ILLNESS AND INJURY**

The instructor shall ask the participants, in groups, to:

3.2.1 Explain the following aspects of the nervous system:
   a. Anatomy of the nervous system
   b. Structure, functions and normal signs
   c. Threats to the nervous system (signs and symptoms of injuries and illnesses)

3.2.2 Explain the following aspects of the respiratory system:
   a. Anatomy of the respiratory system
   b. Structure, functions and normal signs
   c. Threats to the respiratory system (signs and symptoms of injuries and illnesses)

3.2.3 Explain the following aspects of the circulatory system
   a. Anatomy of the circulatory system
   b. Structure, functions and normal signs
   c. Threats to the circulatory system (signs and symptoms of injuries and illnesses)

3.2.4 Explain the risks posed by blood filled organs focusing on the following:
   a. Placement of kidneys, liver and spleen
   b. Effects of injury of the organs

The instructor shall:

3.2.5 If course participants do not cover all points during their review, explain the following topics:
   a. Life conditions, structure, function and signs of the human body
   b. Injuries - signs, symptoms and function
   c. Illnesses - signs symptoms and function
   d. Use of anatomy and first aid in emergency situations
ELEMENT 3.3 - USE OF ANATOMY AND FIRST AID IN EMERGENCY SITUATIONS

The instructor shall:

3.3.1 Explain and demonstrate how to assess a casualty:
   a. Personal Protective Equipment against infections; protection and use of barriers in emergency situations
   b. From structure, function and symptoms to correct first aid treatment of a casualty

Lesson 4 - LIFESAVING FIRST AID USING PRIMARY AND SECONDARY SURVEY

60 min.

The aim of this lesson is to refresh and enhance the course participants previously acquired knowledge of following a systematic sequence for establishing techniques so that each life threatening condition can be identified in a priority order and dealt with on a “find and treat” basis in emergency situations.

To successfully complete this lesson each course participant shall be able to:

1) **Explain** the immediate first aid actions using the Primary Survey (“C”-A - B - C) (L2 - knowledge)
2) **Explain** safe and correct first aid actions for critical bleeding (L2 – Knowledge)
3) **Explain** safe and correct first aid actions for an unresponsive and *breathing* casualty (L2 – Knowledge)
4) **Explain** safe and correct first aid actions for an unresponsive and *not breathing* casualty (L2 – Knowledge)
5) **Explain** how to perform cardiopulmonary resuscitation (CPR) (L2 –knowledge)
6) **Explain** safe and correct first aid actions for obstruction of airways (L2 – knowledge)
7) **Explain** safe and correct first aid for bleeding (both external and internal) (L2 – knowledge)
8) **Explain** safe and correct first aid for shock (L2 – Knowledge & attitude)
9) **Explain** the correct use of secondary survey (L2 – Knowledge)
ELEMENT 4.1 - PRIMARY SURVEY ("C" - A - B - C)

The instructor shall:

4.1.1 Lead a discussion about the importance of personal safety in first aid situations
4.1.2 Lead a discussion about the importance of the primary survey in first aid situations
4.1.3 Explain and demonstrate how to use the Primary Survey ("C" - A - B - C) in an incident covering the following:
   - a. Personal safety in first aid situations
   - b. C – Critical Bleeding
   - c. A - Airway
   - d. B - Breathing
   - e. C - Circulation

ELEMENT 4.2 - UNRESPONSIVE - BREATHING

The instructor shall:

4.2.1 Lead a discussion about the reasons for and safe and correct first aid for a casualty who is unresponsive and is breathing
4.2.2 Explain and demonstrate safe first aid for an unresponsive casualty who is breathing, covering the following:
   - a. Reasons for unresponsiveness
   - 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

ELEMENT 4.3 - UNRESPONSIVE - NOT BREATHING

The instructor shall:

4.3.1 Lead a discussion about the reasons for and safe and correct first aid for a casualty who is unresponsive and is not breathing
4.3.2 Explain and demonstrate safe first aid for an unresponsive casualty who is not breathing, covering the following:
   - a. Reasons for unresponsiveness 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, including AED

ELEMENT 4.4 - CPR

The instructor shall:

4.4.1 Lead a discussion about the importance of personal safety when performing CPR including the risks posed by bodily fluid pathogens and PPE to mitigate the risks

4.4.2 Lead a discussion about CPR, covering the following:
   a. Calling for help before starting CPR
   b. The role of CPR in the chain of survival
   c. The role of the AED in the chain of survival
   d. Personal safety considerations for using an AED
   e. Performing CPR alongside an AED

4.4.3 Explain and demonstrate how to perform CPR, covering the following:
   a. Primary Survey ("C"-A - B - C)
   b. Performing correct and efficient CPR on adults
   c. Use of First Aid equipment, including AED

ELEMENT 4.5 - OBSTRUCTION OF AIRWAYS

The instructor shall:

4.5.1 Lead a discussion about the reasons and safe first aid for an obstructed airway

4.5.2 Explain and demonstrate safe first aid for an obstructed airway, covering the following:
   a. Reasons for obstruction of airways
   b. Threats
   c. Primary Survey ("C"-A - B - C)

ELEMENT 4.6 - BLEEDING - INTERNAL AND EXTERNAL

The instructor shall:

4.6.1 Lead a discussion about the importance personal safety including the risk posed by blood borne pathogens and PPE to mitigate the risk

4.6.2 Lead a discussion about internal and external bleeding, covering the following topics:
a. Primary survey (focusing on “C” – critical bleeding)
b. Reasons for internal and external bleeding
c. Safe first aid

4.6.3 Explain and demonstrate safe first aid for external bleeding, covering the following:
   a. Personal safety when dealing with external bleeding
   b. Reasons for external bleeding
   c. Threats
   d. Primary Survey (“C”-A - B - C)
   e. Use of First Aid equipment
   f. Use of other equipment

4.6.4 Explain and demonstrate how to perform safe first aid for internal bleeding, covering the following:
   a. Personal safety when dealing with internal bleeding
   b. Reasons for internal bleeding
   c. Threats
   d. Primary Survey (“C”-A - B - C)
   e. Use of First Aid equipment

ELEMENT 4.7 - SHOCK

The instructor shall:

4.7.1 Lead a discussion about the reason and safe first aid for shock including psychological first aid

4.7.2 Explain and demonstrate how to perform safe first aid for shock, covering the following:
   a. Reasons for shock
   b. Types of shock
   c. Threats
   d. Primary Survey (“C”-A - B - C)
   e. Use of First Aid equipment
   f. Psychological First Aid
ELEMENT 4.8 - SECONDARY SURVEY

The instructor shall:

4.8.1 Lead a discussion about the importance of the secondary survey and protecting a casualty from exposure to environment elements in first aid situations

4.8.2 Explain the general conditions of secondary survey using the A-B-C-D-E - principle

4.8.3 Explain and demonstrate how to use the A - B – C - D – E- principle in the context of the secondary survey:
   - D: Disability/Neurologic assessment
   - E: Exposure and environmental control

4.8.4 Explain and demonstrate the differences between indications for sitting, lying and shock position (conscious/unconscious) and the importance of keeping up body temperature

Lesson 5 - THEMES

30 min.

This lesson presents 5 themes (situations or factors) that may significantly affect the response and management of first aid incidents in wind turbine environments.

The aim of this lesson is to refresh and build upon the course participants knowledge, skills and understanding presented in one of the 5 themes.

The duration of this lesson is based upon one theme being chosen and delivered.

The instructor shall select one of the 5 themes to teach during the partial refresher first aid training.

LESSON 5 - THEME 1: PSYCHOLOGICAL EFFECTS OF FIRST AID

To successfully complete this theme of the lesson each participant shall be able to:

1) **Explain** how administering first aid during an incident psychologically affects the First Aider (L2 – Knowledge)

2) **Explain** how to give psychological first aid to a person who has administered first aid, in the following situations: (L2 – Knowledge)
   a. Immediately after an incident (short-term impacts on the First Aider)
   b. After an incident (long-term impacts on the First Aider)

3) **Explain** how to evaluate whether they can give psychological first aid or if they need to contact professional help (L2 – Knowledge)

4) **Explain** where First Aiders can receive psychological help (company-specific internal and external psychological help) (L2 – Knowledge)
ELEMENT 5.1 - THEME 1: PSYCHOLOGICAL EFFECTS OF FIRST AID

Training Staff shall:

5.1.1 Lead a discussion about the psychological effects of administering first aid on the person performing first aid, covering the following:
   a. Psychological consequences of administering first aid
   b. PTSD after administering first aid
   c. Tools first aiders can use to minimise psychological impacts of administering first aid
   d. Where first aiders can receive help for coping with psychological effects (including PTSD) of administering first aid
   e. How first aiders can evaluate whether they can administer psychological first aid or if they need to contact professional help

5.1.2 Explain and demonstrate the psychological effects of administering First Aid for First Aider (person administering First Aid)
   a. Psychological consequences of administering First Aid
   b. Post-Traumatic Stress Disorder (PTSD) after administering First Aid
   c. Tools First Aiders can use to minimise psychological impacts of administering First Aid
   d. Where First Aiders can receive help for coping with psychological effects (including PTSD) of administering First Aid
   e. How First Aiders can evaluate whether they can administer psychological First Aid or if they need to contact professional help

LESSON 5 - THEME 2: SUDDEN SICKNESS AND ENVIRONMENTAL FACTORS

To successfully complete this theme of the lesson each participant shall be able to:

1) **Explain** how to respond to sudden sickness and environmental factors, that affect the following: (L2 –Knowledge)
   a. Central nervous system
   b. Respiratory system
   c. Circulatory system

ELEMENT 5.2 - THEME 2: SUDDEN SICKNESS AND ENVIRONMENTAL FACTORS

The instructor shall:

5.2.1 Lead a discussion about how to perform first aid for sudden sickness and environmental factors (e.g. chemical, air quality, dust, pollen, gases, poisonous animals, etc.), covering the following:

Global Wind Organisation
www.globalwindsafety.org
a. How to respond to sudden sickness *caused* and *worsened* by environmental factors that affect the *central nervous system*

b. How to respond to sudden sickness *caused* and *worsened* by environmental factors that affect the *respiratory system*

c. How to respond to sudden sickness *caused* and *worsened* by environmental factors that affect the *circulatory system*

5.2.2 Explain and demonstrate how to perform first aid for sudden sickness and environmental factors (e.g. chemical, air quality, dust, pollen, gases, poisonous animals, etc.), covering the following:

a. Most common first aid conditions *caused* by local environmental factors found at the specific geographic work locations and workplace related hazards

b. Most common first aid conditions *worsened* by local environmental factors found at the specific geographic work locations

c. Effects of alcohol and other medication and narcotics on physical and psychological performance

**LESSON 5 - THEME 3: TYPES OF TRAUMA**

To successfully complete this theme of the lesson each participant shall be able to:

1) **Explain** how to manage and respond to trauma incidents that affect the following: (L2 –Knowledge)

   a. Central nervous system
   
   b. Respiratory system
   
   c. Circulatory system

**ELEMENT 5.3 - THEME 3: TYPES OF TRAUMA**

The instructor shall:

5.3.1 Lead a discussion about how to manage, respond and perform first aid for trauma incidents that effect the following:

   a. Central nervous system
   
   b. Respiratory System
   
   c. Circulatory system

5.3.2 Explain and demonstrate first aid for trauma incidents that effect the central nervous system, the respiratory system and the circulatory system and considering the following:

   a. Most common trauma conditions caused by accidents at both on & offshore *construction sites*
b. Most common trauma conditions caused by accidents at both on & offshore service sites during operation and maintenance

LESSON 5 - THEME 4: INCIDENT MANAGEMENT AND SITUATIONAL AWARENESS

To successfully complete this theme of the lesson each participant shall be able to:

1) **Explain** how incident management and situational awareness can effect first aid incidents in a wind turbine environment both **onshore** and **offshore** (L2 – Knowledge)

ELEMENT 5.4 - THEME 4: INCIDENT MANAGEMENT AND SITUATIONAL AWARENESS

The instructor shall:

5.4.1 Lead a discussion about incident management and situational awareness, covering the following:
   a. How lacking situational awareness can **worsen** First Aid incidents and cause further harm
   b. How to manage First Aid incidents and preserve situational awareness **offshore** and **onshore**

5.4.2 Explain and demonstrate safe and correct incident management and how to maintain situational awareness in first aid situations, covering the following:
   a. How lacking situational awareness can **worsen** First Aid incidents and cause further harm
   b. How to manage First Aid incidents and preserve situational awareness **offshore** and **onshore**

LESSON 5 - THEME 5: COMPLEX INCIDENTS WITH SEVERAL (2-5) CASUALTIES

To successfully complete this theme of the lesson each participant shall be able to:

1) **Explain** how to manage and effectively perform first aid during complex incidents with several casualties in a wind turbine work environment (L2 – Knowledge)

2) **Explain** how situational awareness and the psychological effects of performing first aid can affect the management and administering of first aid during complex incidents with several casualties in a wind turbine work environment (L2 – Knowledge)

**Note:** During this theme ‘several’ casualties refers to incidents where there are two to five casualties.
ELEMENT 5.5 - THEME 5: COMPLEX INCIDENTS WITH SEVERAL (2-5) CASUALTIES

The instructor shall:

5.5.1 Lead a discussion about the challenges of and how to manage complex incidents with several casualties in wind turbine working environments, covering the following:

a. How to prioritise, manage and perform first aid during complex incidents with several casualties

b. Situational awareness, knowledge and understanding of psychological effects of managing and administering first aid during complex incidents with several casualties

c. How to systematically and effectively manage complex first aid scenarios during complex incidents with several casualties

5.5.2 Explain and demonstrate how to manage complex incidents with several casualties in wind turbine working environments

a. Difficulties and challenges of managing and administering first aid during complex incidents with several casualties

b. Situational awareness and psychological effects of managing and administering first aid during complex incidents with several casualties

c. Systematically and effectively managing complex first aid scenarios during complex incidents with several casualties
Lesson 6 - FIRST AID SCENARIOS

60 min.

The aim of this lesson is to enable the course participants, through a combination of group discussion and individual explanation, to reflect on how the learning gained during this module can be applied to different first aid scenarios that they may encounter in a wind turbine or in the wind industry.

To successfully complete this lesson course participants shall be able to:

1) **Value** the benefits of and **explain** how to apply the following principles to the scenarios listed in element 6.1.2: (L3 – Attitude) and (L2 – Knowledge)
   a. Personal safety, precautions and PPE
   b. Managing incidents – safe approach, assessment and prioritisation of incidents
   c. Primary & secondary survey
   d. Providing the necessary lifesaving first aid in an incident
   e. Correct use of first aid equipment
   f. AED safety procedures
   g. Correct use of an AED

ELEMENT 6.1 - APPLICATION OF FIRST AID TECHNIQUES

The instructor shall:

6.1.1 Show examples of a the scenarios listed in element 6.1.2 and lead a discussion about the benefits of and how to apply the following principles to first aid in those scenarios, covering the following:
   a. Personal safety, precautions and PPE
   b. Managing incidents – safe approach, assessment and prioritisation of incidents
   c. Primary & secondary survey
   d. Providing the necessary lifesaving first aid in an incident
   e. Correct use of first aid equipment
   f. AED safety procedures
   g. Correct use of an AED

**Note:** The instructor shall select several scenarios from the list in element 6.1.2 and present those scenarios to the participants for a discussion about the approach and application of first aid measures in those scenarios. At least one scenario must be based on an electrical incident.
6.1.2 First Aid scenarios

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. Seizures (e.g. epileptic seizure)
i. Asthma
j. Stroke (circulatory, respiratory, central nervous system)
k. Serious burns (Chemical, electrical, thermal and sun)
l. Hypothermia
m. Heat related illness (heat stroke, heat exhaustion, hyperthermia, cramps etc.)
n. Crush injury
o. Eye injury
p. Electrical accidents minor/serious
q. Amputation
r. Minor incident escalating to a serious incident
s. Traffic related accidents
Lesson 7 - EVALUATION

15 min.

The aim of this lesson is to enable the participants 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 their way of work. Additionally, the aim is to give the participants the opportunity to conduct an open-minded written and oral formative evaluation of the training.

To successfully complete this lesson of the module each participant shall:

1) Show commitment to avoid incidents requiring the skills in this module
2) Participate in the formative evaluation of the module in a constructive manner
3) Conduct an online or written formative evaluation of the module.

ELEMENT 7.1 - REFLECTION SESSION

The instructor shall:

7.1.1 Give the participants final feedback on the formal participant performance assessment and inform them whether they have passed (failed participants must be informed individually prior to the reflection session)
7.1.2 Help the participants 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 their way of work. This can be achieved by an individual reflection session, question session and/or class discussion
7.1.3 Re-present the overall aims and objectives of the course for the participants comparison on their learning outcome and meeting of their previously stated expectations of the course
7.1.4 Give an overall feedback and feed forward on the participants learning outcome
7.1.5 Encourage the participants to examine and grow awareness of what specific elements in their own wind turbine type and environment differ from the training scenario environment (to visualize and enhance learning transfer) and to discuss with colleagues the methods and techniques under the local specific conditions identified after course completion

ELEMENT 7.2 - FORMATIVE EVALUATION

The instructor shall:

7.2.1 Respond on relevant elements of any oral feedback from the participants.
Basic Safety Training

**Online Partial** Refresher (BSTR-P)
(Onshore/Offshore)

**Module 2 – Manual handling**

Version 1
April 2020
10 BSTR-P MODULE 2 - MANUAL HANDLING

10.1 Aims and objectives of the BSTR-P Manual handling module

The aim of this module is to develop a positive manual handling and ergonomic mindset, encourage course participants to consider alternatives to manual handling through planning and to train the course participants ability and attitude to perform manual handling tasks in a safe manner in the wind industry and wind turbine environment.

The training shall be designed to improve and refresh course participants’ awareness through both theoretical knowledge and practical training. The focus shall be on eliminating risk and controlling hazards and practicing correct techniques if elimination is not possible.

Training should incorporate the sharing of knowledge of the more experienced delegates.

The partial manual handling refresher module shall ensure that the course participants can:

1) **Demonstrate** a problem-solving approach to manual handling in a wind turbine environment (L3 – Skill)
2) **Demonstrate** manual handling risk reduction techniques (L3 – Skill)
3) **Identify** aspects of their job tasks that could increase their risk of developing muscular/ skeletal injuries (L2 – Knowledge)
4) **Explain** the importance of carrying out work duties in a safe and sound manner in accordance with the legislative requirements of their geographic work location (L2 – Knowledge)
5) **Explain** safe practises of Manual Handling, including the correct handling of equipment (L2 – Knowledge)
6) **Identify** signs and symptoms of injuries related to poor Manual Handling techniques and have knowledge of reporting methods (L2 – Knowledge)
10.2 BSTR-P Manual handling instructor to participant ratio

The ratio shown for theory sessions indicates the maximum number of course participants that shall attend the course.

The ratio shown for practical lessons indicates the maximum number of course participants to be supervised by an instructor during each activity.

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
<th>Instructor to Delegate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTR-P Manual handling</td>
<td>Theory</td>
<td>1:12</td>
</tr>
<tr>
<td></td>
<td>Practical</td>
<td>1:6</td>
</tr>
</tbody>
</table>

*Table 10-2 – GWO BSTR-P Manual handling module instructor to participant ratio*

10.3 Duration of the BSTR-P Manual handling module

The total contact time for completing this manual handling partial refresher module is estimated to be 2 hours and 35 minutes at the instructor to participant ratios shown in table 10-2.

The training provider must ensure that sufficient time is allowed for participants to share their experiences related to first aid in a way that is constructive for the entire class.

10.4 BSTR-P Manual handling module timetable

The order in which the elements of this BSTR-P module is delivered may vary.

The expected duration of each lesson is shown in table 10-4.

The training provider may choose to deliver elements of the training according to other timetables, provided that the practical elements are not reduced in length.

Theoretical elements should be delivered during the practical exercises when feasible.
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Element</th>
<th>Approx. Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>15 min.</td>
</tr>
<tr>
<td>1.1</td>
<td>introductions and expectations</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Instructor and participant introductions</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>Aims, objectives and agenda</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>Motivation</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>On-going assessment</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15 min.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Legislation and behavioural safety</td>
<td>15 min.</td>
</tr>
<tr>
<td>2.1</td>
<td>Global legislation</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Regional legislation</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Behavioural safety</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15 min.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Spinal anatomy and posture</td>
<td>20 min.</td>
</tr>
<tr>
<td>3.1</td>
<td>Anatomy and common injuries</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Symptom awareness</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Reporting methods</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>20 min.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Planning manual handling</td>
<td>20 min.</td>
</tr>
<tr>
<td>4.1</td>
<td>T.I.L.E. principle</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td>Further control measures</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>20 min.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Manual handling: risk controls &amp; proper manual handling techniques</td>
<td>70 min.</td>
</tr>
<tr>
<td>6.1</td>
<td>Risks and hazards in the wind industry</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Manual handling risk reduction</td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>injury prevention - Exercises</td>
<td></td>
</tr>
<tr>
<td>6.4</td>
<td>Injury prevention - Warmup</td>
<td></td>
</tr>
<tr>
<td>6.5</td>
<td>Proper manual handling techniques</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>70 min.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Evaluation</td>
<td>15 min.</td>
</tr>
<tr>
<td>7.1</td>
<td>Reflection session</td>
<td></td>
</tr>
<tr>
<td>7.2</td>
<td>Formative evaluation</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15 min.</td>
<td></td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>155 min.</td>
<td></td>
</tr>
</tbody>
</table>

*Table 10-4 – GWO BSTR-P Manual handling module timetable*
10.5 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 introduce the course participants to the course, each other, the virtual classroom and what is expected of them during the course.

To successfully complete this lesson of the module each course participant shall be able to:

1) Describe how the training will be managed and their expected interactions
2) Recognize who the instructor and other participants are
3) Describe the aims, objectives and agenda of the training
4) Explain the importance and relevance of this training and their own expectations for the course
5) Explain how they will be assessed during this training

**ELEMENT 1.1 - INTRODUCTIONS AND EXPECTATIONS**

The instructor shall:

1.1.1 Explain how the online training session will be managed, covering:
   a. Instructor and participant interactions
   b. Questions and answers
   c. Participant demonstrations

**ELEMENT 1.2 - INSTRUCTOR & DELEGATE PRESENTATION**

The instructor shall:

1.2.1 Ensure that all course participants are registered with WINDA profile and have provided their WINDA ID number prior to completing the training course.
1.2.2 Give a short introduction, including their backgrounds as instructors

Each course participant shall:

1.2.3 Give a short introduction, including:
   a. Their job functions
   b. Onshore or offshore experience
   c. Length of employment in the wind industry
d. Expected primary geographic work location

1.2.4 Describe their own expectations for the course

ELEMENT 1.3 - AIMS, OBJECTIVES AND AGENDA

The instructor shall:

1.3.1 Explain the overall aims & objectives of this module
1.3.2 Show the agenda of the training including breaks

ELEMENT 1.4 - MOTIVATION

The instructor shall:

1.4.1 Explain the relevance of this module and why manual handling knowledge and skills are relevant
1.4.2 Explain the importance of personal involvement in the course
1.4.3 Describe how the Delegates will be challenged, and why

ELEMENT 1.5 - ONGOING ASSESSMENT

The instructor shall:

1.5.1 Explain the reasons for the on-going assessment
1.5.2 Explain how the course participants will be assessed during the training including the GWO participant assessment form and its use
1.5.3 Explain what is expected of the course participants
Lesson 2 - LEGISLATION AND BEHAVIOURAL SAFETY

15 min.

The aim of this lesson is to increase the course participants knowledge and to inform them of the relevant legislation and demands in order to ensure the course participants’ understanding of the roles, responsibilities and rules that apply to manual handling.

To successfully complete this lesson, each course participant shall be able to:

1) Describe internationally recognised legislation relevant to manual handling (L1 – Knowledge)
2) Describe national or regional legislation relevant to manual handling (L1 – Knowledge)
3) Explain the consequences of injuries arising from poor manual handling (L2 – Knowledge)
4) Explain the possible causes of injuries (L2 – Knowledge)

ELEMENT 2.1 - GLOBAL LEGISLATION

The instructor shall:

2.1.1 Describe global legislation that applies to manual handling and the participants responsibilities under such legislation

ELEMENT 2.2 - REGIONAL LEGISLATION

The instructor shall:

2.2.1 Describe national and / or regional legislation that applies to manual handling and the participants responsibilities under such legislation
2.2.2 Describe the role of industry organisations in enforcing national or regional legislation

ELEMENT 2.3 - BEHAVIOURAL SAFETY

The instructor shall:

2.3.1 Lead a discussion about how poor manual handling can cause injuries and attributing factors, covering the following:
   a. The participants individual attitudes to manual handling tasks
   b. Time versus effort / conditions / risk
   c. Putting the job or task before self
   d. Negative habits
   e. Previous injuries
2.3.2 Explain the consequences of incorrect manual handling

2.3.3 Highlight the importance of staying injury-free

Lesson 3 - SPINAL ANATOMY AND POSTURE

20 min.

The aim of this lesson is to reduce the risk of muscular and spinal injuries, through discussion and individual explanations, by enabling the course participants to value and apply the principles of risk awareness, early detection and treatment of muscular and skeletal injuries caused by incorrect manual handling.

To successfully complete this lesson, each course participant shall be able to:

1) **Explain** common muscular and skeletal injuries (L2 – Knowledge)
2) **Describe** spinal anatomy, including prolapsed disc and the importance of neutral posture (L2 – Knowledge)
3) **Describe** shoulder anatomy, including common injuries (L1 – Knowledge)
4) **Describe** typical symptoms of muscular and skeletal injury and **value** the importance of early detection and treatment (L1 – Knowledge)
5) **Describe** typical injury reporting methods (L1 – Knowledge)

ELEMENT 3.1 - ANATOMY AND COMMON INJURIES

The instructor shall:

3.1.1 Lead a discussion about muscular and skeletal injuries related to manual handling, including:
   a. Back Injuries, e.g. prolapsed disc,
   b. Muscle strains
3.1.2 Explain the relationship between injury and spinal anatomy and posture
3.1.3 Explain the relationship between shoulder anatomy and common injuries when working above shoulder height e.g. tendonitis, bursitis
3.1.4 Explain the relationship between spinal anatomy, common injuries like prolapsed disc and the importance of neutral posture
ELEMENT 3.2 - SYMPTOM AWARENESS

The instructor shall:

3.2.1 Lead a discussion about the importance of symptom awareness and early detection and treatment of muscular and skeletal injuries
3.2.2 Describe typical symptoms of muscular and skeletal injuries
3.2.3 Explain the importance of early detection and treatment

ELEMENT 3.3 - REPORTING METHODS

Training Staff shall:

3.3.1 Lead a discussion about reporting methods and procedures in case of injuries, covering the following:
   a. National or regional requirements
   b. Company specifics

Lesson 4 - PLANNING MANUAL HANDLING

20 min.

The aim of this lesson is to reduce the risk of injury resulting from incorrect manual handling by enabling the course participants to value and apply the principles of assessing the risks and planning the task.

To successfully complete this lesson, each course participant shall be able to:

1) **Explain** the Task Individual Load Environment (T.I.L.E.) Principle (L2 – Knowledge)
2) **Value** the importance of and **explain** how to assess and control risks and aggravating factors using a MAC tool (L2 – Knowledge)
3) **Explain** further control measures that can be used to reduce the risks associated with manual handling and how to apply these in practice (L2 – Knowledge)

**Note:** Please refer to annex 4: Manual handling risk assessment for details on T.I.L.E. Principle and assessing aggravating factors and risks.

The contents of annex 4 may be used as a basis for developing training material.
ELEMENT 4.1 - T.I.L.E. PRINCIPLE

The instructor shall:

4.1.1 Lead a discussion about the importance of and how to perform a basic, quick risk assessment, e.g. identification of aggravating factors, assess the level of risk, control the risk

4.1.2 Lead a discussion about the importance of and how to plan 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)

4.1.3 Explain the T.I.L.E principle, and how to use it to mitigate aggravating factors and risks

ELEMENT 4.2 - FURTHER CONTROL MEASURES

The instructor shall:

4.2.1 Lead a discussion about further control measures and how these can be applied to reduce the risk of injury arising from poor manual handling behaviour

4.2.2 Explain 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 & team lifting
   d. Protecting pre-existing injuries
   e. Adequate lighting
   f. Good housekeeping
Lesson 5 - MANUAL HANDLING: RISK CONTROLS & PROPER MANUAL HANDLING TECHNIQUES

70 min.

The aim of the lesson is to reduce the risk of injury arising from poor manual handling in the wind industry by raising awareness of the risks, promoting a positive mindset towards preventative measures like warm-up exercises and enabling the course participants to value and apply the principles of task planning and using proper manual handling techniques.

To successfully complete this lesson each course participant shall be able to:

1) Explain the risks associated with manual handling specific to wind turbines and the wind industry. (L2 – Knowledge)

2) Value and explain how to apply a hierarchical approach to manual handling in their daily work tasks. (L3 – Attitude)

3) Demonstrate how to use practical exercises for training the back and shoulders. (L3 – Skill)

4) Demonstrate how to stretch and warm-up specific muscle groups. (L3 – Skill)

5) Demonstrate how to use proper manual handling techniques. (L3 – Skill)

Note: The instructor shall verify the skills in learning objectives using a live video link.

Demonstration of these skills will require the course participant to have this equipment available therefore the course participants should be on-site while performing these skills.

Note: During this lesson the course participants’ 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 course participants should be motivated to mention any specific situations where they find it hard to appropriately use correct manual handling techniques

ELEMENT 5.1 - RISKS AND HAZARDS IN THE WIND INDUSTRY

The instructor shall:

5.1.1 Lead a discussion about the risks and hazards of manual handling relevant to job functions within the wind industry and covering the following:

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

ELEMENT 5.2 - MANUAL HANDLING RISK REDUCTION

The instructor shall:

5.2.1 Lead a discussion about the importance of and how to avoid the risks and hazards and improve safety while executing manual handling related tasks
5.2.2 Explain and demonstrate how the risks associated with manual handling can be reduced by applying and focusing on the benefits of a hierarchical approach:
   a. Reducing the need for manual handling using handling aids where possible
   b. Planning and execution of manual using the T.I.L.E. principle and MAC tool – considering the load weight, maximum reaching distance and aggravating factors

ELEMENT 5.3 - INJURY PREVENTION - BACK AND SHOULDER EXERCISES

The instructor shall:

5.3.1 Explain and demonstrate some simple exercises for increasing strength and stability in the shoulders and back

ELEMENT 5.4 - INJURY PREVENTION – WARMUP EXERCISES

The instructor shall:

5.4.1 Explain and demonstrate how to perform simple warmup and stretch exercises to prepare specific muscle groups relevant for the manual handling task

ELEMENT 5.5 - PROPER MANUAL HANDLING TECHNIQUES

Training staff shall:

5.5.1 Demonstrate how to stretch and warm-up muscle groups relevant to the task
5.5.2 Demonstrate how to use proper manual handling techniques, including:
   a. Safe lifting techniques from floor
   b. Safe lifting techniques from height (e.g. bench, shelving rack)
   c. Safe lifting techniques using 2 or more persons
   d. Proper 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 5.6 - PRACTICE IN PROPER MANUAL HANDLING TECHNIQUES**

The instructor shall:

5.6.1 Explain safety precautions that the participants shall adopt during this element

5.6.2 Explain that each course participant shall perform a manual handling operation that includes the following:

   a. Safe and correct manual handling techniques for an object on the floor
   
   b. Safe and correct manual handling techniques for an object at height (e.g. on a table, shelf or similar)

5.6.3 Following each participant demonstration lead a group discussion about how these techniques can be applied to the participants daily work situations

**Lesson 5 Notes:**

1) The practical training shall be structured in such a way that each participant can gain practical understanding through application of theory introduced in the previous lessons.

   Specifically, the experiences and challenges that were discussed during element 2.3 shall be reviewed and applied during this lesson.

2) Each participant will benefit most if they can connect and explain how they can apply these exercises to their daily work situation.

3) 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 (33.07 lbs).

4) The instructor should observe and provide immediate constructive feedback to the delegates focusing on the following areas:

   a. Reducing manual handling using suitable handling aids where possible
   
   b. Planning of manual handling tasks using the T.I.L.E. Principle and MAC tool - considering the load weight, maximum reaching distance and aggravating factors
   
   c. Correct manual handling techniques
Lesson 6 - EVALUATION

15 min.

The aim of this lesson is to enable the participants 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 their way of work. Additionally, the aim is to give the participants the opportunity to conduct an open-minded written and oral formative evaluation of the training.

To successfully complete this lesson of the module each participant shall:

1) Show commitment to avoid incidents requiring the skills in this module
2) Participate in the formative evaluation of the module in a constructive manner
3) Conduct an online or written formative evaluation of the module.

ELEMENT 6.1 - REFLECTION SESSION

The instructor shall:

6.1.1 Give the participants final feedback on the formal participant performance assessment and inform them whether they have passed (failed participants must be informed individually prior to the reflection session)
6.1.2 Help the participants 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 their way of work. This can be achieved by an individual reflection session, question session and/or class discussion
6.1.3 Re-present the overall aims and objectives of the course for the participants comparison on their learning outcome and meeting of their previously stated expectations of the course
6.1.4 Give an overall feedback and feed forward on the participants learning outcome
6.1.5 Encourage the participants to examine and grow awareness of what specific elements in their own wind turbine type and environment differ from the training scenario environment (to visualize and enhance learning transfer) and to discuss with colleagues the methods and techniques under the local specific conditions identified after course completion

ELEMENT 6.2 - FORMATIVE EVALUATION

The instructor shall:

6.2.1 Respond on relevant elements of any oral feedback from the participants.
Basic Safety Training

Online Partial Refresher (BSTR-P)
(Onshore/Offshore)

Module 3 – Fire awareness

Version 1
April 2020
11 BSTR-P MODULE 3 - FIRE AWARENESS

11.1 Aims and objectives of BSTR-P Fire awareness module

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

Course participants 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)
11.2 BSTR-P Fire awareness instructor to participant ratio

The ratio shown for theory sessions indicates the maximum number of participants that can attend the course.

The ratio shown for practical lessons indicates the maximum number of participants to be supervised by an instructor during each activity.

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
<th>Instructor to Delegate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTR-P Fire awareness</td>
<td>Theory</td>
<td>1:12</td>
</tr>
<tr>
<td></td>
<td>Practical</td>
<td>1:12</td>
</tr>
</tbody>
</table>

*Table 11-2 – GWO BSTR-P Fire awareness module instructor to participant ratio*

11.3 Duration of BSTR-P Fire awareness module

The total contact time for completing this fire awareness partial refresher module is estimated to be 2 hours and 10 minutes at the instructor to participant ratios shown in table 11-2.

The training provider must ensure that sufficient time is allowed for participants to share their experiences related to first aid in a way that is constructive for the entire class.

11.4 BSTR-P Fire awareness module timetable

The order in which the elements of this BSTR-P module is delivered may vary.

The expected duration of each lesson is shown in table 11-4.

The training provider may choose to deliver elements of the training according to other timetables, provided that the practical elements are not reduced in length.

Theoretical elements should be delivered during the practical exercises when feasible.
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Element</th>
<th>Approx. Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>1.1 Introduction &amp; expectations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2 instructor &amp; participant introduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.3 Aims, objectives &amp; agenda</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4 Motivation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.5 On-going assessments</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15 min.</td>
</tr>
<tr>
<td>2</td>
<td>Legislation</td>
<td>2.1 Global legislation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.2 National &amp; regional legislation</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15 min.</td>
</tr>
<tr>
<td>3</td>
<td>Fire combustion and fire spread</td>
<td>3.1 Types of fires</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2 Materials and fire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.3 Triangle of combustion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.4 Fire spread &amp; fire gases</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>20 min.</td>
</tr>
<tr>
<td>4</td>
<td>Fire extinguishing</td>
<td>4.1 Contingency plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.2 Assessing the fire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.3 Fire classes</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>25 min.</td>
</tr>
<tr>
<td>5</td>
<td>Fire Prevention</td>
<td>5.1 Fire hazards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.2 Fire prevention measures</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>20 min.</td>
</tr>
<tr>
<td>6</td>
<td>Firefighting equipment in a WTG</td>
<td>6.1 Pre-use inspection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.2 Correct use of firefighting equipment</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>20 min.</td>
</tr>
<tr>
<td>7</td>
<td>Evaluation</td>
<td>7.1 Reflection session</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.2 Formative evaluation</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15 min.</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>GRAND TOTAL 130 min.</td>
</tr>
</tbody>
</table>

Table 11-3 - GWO Fire Awareness module timetable
11.5 Detailed description of BST Fire Awareness Module

Lesson 1 - INTRODUCTION

15 min.

The aim of this lesson is to introduce the course participants to the course, each other, the virtual classroom and what is expected of them during the course.

To successfully complete this lesson of the module each course participant shall be able to:

1) Describe how the training will be managed and their expected interactions
2) Recognize who the instructor and other participants are
3) Describe the aims, objectives and agenda of the training
4) Explain the importance and relevance of this training and their own expectations for the course
5) Explain how they will be assessed during this training

ELEMENT 1.1 - INTRODUCTIONS AND EXPECTATIONS

The instructor shall:

1.1.1 Explain how the online training session will be managed, covering:
   a. Instructor and participant interactions
   b. Questions and answers
   c. Participant demonstrations

ELEMENT 1.2 - INSTRUCTOR & DELEGATE PRESENTATION

The instructor shall:

1.2.1 Ensure that all course participants are registered with WINDA profile and have provided their WINDA ID number prior to completing the training course.
1.2.2 Give a short introduction, including their backgrounds as instructors

Each course participant shall:

1.2.3 Give a short introduction, including:
   a. Their job functions
   b. Onshore or offshore experience
   c. Length of employment in the wind industry
   d. Expected primary geographic work location
1.2.4  Describe their own expectations for the course

ELEMENT 1.3 - AIMS, OBJECTIVES AND AGENDA

The instructor shall:

1.3.1  Explain the overall aims & objectives of this module
1.3.2  Show the agenda of the training including breaks

ELEMENT 1.4 - MOTIVATION

The instructor shall:

1.4.1  Explain the relevance of this module and why fire awareness and skills are relevant
1.4.2  Explain the importance of personal involvement in the course
1.4.3  Describe how the Delegates will be challenged, and why

ELEMENT 1.5 - ONGOING ASSESSMENT

The instructor shall:

1.5.1  Explain the reasons for the on-going assessment
1.5.2  Explain how the course participants will be assessed during the training including the GWO participant assessment form and its use
1.5.3  Explain what is expected of the course participants
Lesson 2 - LEGISLATION

15 min.

The aim of this lesson is for the course participants to understand relevant legislation and requirements that apply to fire prevention and firefighting equipment related to the wind industry.

To successfully complete this lesson each course participant shall be able to:

1) **Describe** global legislation that is relevant to fire prevention and firefighting equipment in the wind industry (L1 - Knowledge)

2) **Describe** national or regional legislation that is relevant to fire prevention and firefighting equipment in the wind industry (L1 - Knowledge)

**ELEMENT 2.1 - GLOBAL LEGISLATION**

The instructor shall:

2.1.1 Describe global legislation and requirements that apply to fire prevention and firefighting equipment in both the *onshore* and the *offshore* wind industry.

**ELEMENT 2.2 - NATIONAL & REGIONAL LEGISLATION**

The instructor shall:

2.2.1 Describe national and/or regional legislation that applies to fire prevention and firefighting equipment in both the *onshore* and the *offshore* wind industry

2.2.2 Describe the responsibilities towards fire prevention and firefighting equipment that national or regional legislation places on the course participants in the wind industry

2.2.3 Describe how local authorities can enforce national or regional legislation that applies to fire prevention and firefighting equipment in the wind industry both *onshore* and *offshore*
Lesson 3 - FIRE COMBUSTION AND FIRE SPREAD

20 min.

The aim of this lesson is to reduce the risk of injury in the wind industry by refreshing and building upon the participants fire awareness knowledge of combustion, fire spread, the different types of fires, the composition of and risks associated with fire gasses and the elements needed for a fire.

To successfully complete this lesson each course participant shall be able to:

1) **Describe** the classes of fire (L1 - Knowledge)
2) **Explain** how the material state and material surface area can affect combustion and fire spread (L2 - Knowledge)
3) **Explain** basic fire theory and the triangle of combustion (L2 - Knowledge)
4) **Explain** how a fire can spread and the dangers of fire gasses (L2 - Knowledge)

ELEMENT 3.1 - TYPES OF FIRES

The instructor shall:

3.1.1 Lead a discussion about the classes of fire that the participants might encounter in their working environment
3.1.2 Describe the classes of fire e.g. liquids, solids and gasses (refer to table L4-3 in lesson 4 for details)

ELEMENT 3.2 - MATERIALS AND FIRE

The instructor shall:

3.2.1 Lead a discussion about how the surface area can influence the intensity and spread of a fire
3.2.2 Explain how the material state and the surface area and influence combustion and fire spread

ELEMENT 3.3 - TRIANGLE OF COMBUSTION

The instructor shall:

3.3.1 Lead a discussion about the element needed for a fire to burn and how removal of these elements will influence the fire
3.3.2 Show an example of and describe the triangle of combustion
3.3.3 Explain the which elements are needed for a fire to occur with reference to the 3 sides of the triangle of combustion (oxygen, material and temperature)
ELEMENT 3.4 - FIRE SPREAD AND FIRE GASSES

The instructor shall:

3.4.1 Lead a discussion about how fire can start and spread in a wind turbine focusing on the speed of development and how the design of a wind turbine can influence the fire spread (e.g. chimney effect of the tower)

3.4.2 Explain fire spread in relation to wind turbines considering the following:
   a. Conduction
   b. Convection
   c. Radiation
   d. Direct Burning

3.4.3 Lead a discussion about the risks posed by fire gases in a wind turbine

3.4.4 Explain the composition and hazards of fire gases based on the materials in a wind turbine, covering the following as a minimum:
   a. Fibre reinforced composite materials
   b. Oils and greases
   c. Insulating material on electrical components
   d. Other plastics and rubber materials

Lesson 4 - FIRE EXTINGUISHING

25 min.

The aim of this lesson is to reduce the risk of injury by refreshing and building upon the participants knowledge and understanding of how to assess a fire, act according to a contingency plan and if needed to be able to select the correct extinguishing media according to the fire class.

To successfully complete this lesson each course participant shall be able to:

1) **Value** the importance of and **describe** the location and content of contingency plans (L3 - Attitude) and (L1 – Knowledge)

2) **Explain** how to assess a fire how to act in the event of discovering a fire in a wind turbine (L2 - Knowledge)

3) **Explain** which type of fire extinguishing media should be used for each fire class (L2 - Knowledge)
ELEMENT 4.1 - CONTINGENCY PLAN

The instructor shall:

4.1.1 Lead a discussion about the importance of contingency plans for fire in a wind turbine.

4.1.2 Show examples of and explain situations, from the wind or other industries, where the importance of knowing beforehand what to do in an emergency would have saved lives.

4.1.3 Show an example of and explain the contents of a typical contingency plan that can be found in a wind turbine.

4.1.4 Explain and demonstrate when and how to use a personal escape mask, if applicable. Explain that these are not found in every type of wind turbine.

ELEMENT 4.2 - ASSESSING THE FIRE

The instructor shall:

4.2.1 Lead a discussion about the importance and challenges of assessing fires in wind turbines and the point in a fire development to evacuate from the wind turbine.

4.2.2 Show an example of and explain the fire intensity curve and how this relates to assessing a fire in a wind turbine.

4.2.3 Show an example of a developing fire and explain how to assess this fire and how to act based on the assessment of the fire and at which point evacuation is necessary.

Note: In element 4.2.3 the instructor should show a video of a developing fire and attempt to relate this to the working environment of the participants and encourage them to reflect on how the speed of fire development in a wind turbine could affect them.

ELEMENT 4.3 - FIRE CLASSES

The instructor shall:

4.3.1 Lead a discussion about the location and types of fire extinguishers found in the wind turbines where the participants work and how the media in these extinguishers act, referring to the fire triangle, to extinguish a fire.

4.3.2 Explain how fire extinguisher media acts to extinguish fires by considering the fire triangle.

4.3.3 Explain the fire classes and typical extinguisher media for these classes (refer to table L4-3 below).

4.3.4 Show examples of and explain typical fire extinguishing media that can be found in a wind turbine and which fire classes these can be used for.
Lesson 5 - FIRE PREVENTION

20 min.

The aim of this lesson is to reduce the risks of a fire by refreshing and building upon the participants attitude and knowledge of the importance of fire prevention measures in a wind turbine.

To successfully complete lesson each course participant shall be able to:

1) **Explain** the risks and hazards relating to fires within the wind industry. (L2 - Knowledge)
2) **Value** the importance of and **explain** how personal behaviour can improve fire safety during daily work in a wind turbine. (L3 – Attitude) and (L2 - Knowledge)

**ELEMENT 5.1 - FIRE HAZARDS**

The instructor shall:

5.1.1 Lead a discussion about the risks and hazards of fire when working in a wind turbine focusing on the speed at which a fire can develop, and the toxic gasses that can be released during combustion

5.1.2 Lead a discussion about the risks and hazards of a fire developing in an unmanned turbine and how this can affect the surrounding area and the image and reputation of the wind turbine owner and manufacturer

**ELEMENT 5.2 - FIRE PREVENTION MEASURES**

The instructor shall:

5.2.1 Lead a discussion about the importance of personal behaviour as a fire prevention measure and how good habits and housekeeping can reduce the risk of a fire starting

5.2.2 Explain how to improve fire safety in daily work situations through things like good habits and housekeeping
Lesson 6 - FIREFIGHTING EQUIPMENT IN A WTG

20 min.

The aim of this lesson is to reduce the risks of injury arising from a fire by refreshing and building upon the participants attitude and knowledge about common firefighting equipment found in a wind turbine aiming to enable them to use this equipment efficiently and without the risk of injuries.

To successfully complete this lesson each course participant shall be able to:

1) **Value** the importance of and **explain** how to carry out a pre-use inspection of various firefighting equipment focusing on equipment found in a wind turbine. (L3 – Attitude) and (L2 - Knowledge)

2) **Value** the importance of safe distances and **explain** the safe, correct and efficient use of various firefighting equipment with emphasis on equipment found in a wind turbine. (L3 – Attitude) and (L2 - Knowledge)

3) **Explain** the advantages and disadvantages of various firefighting equipment with emphasis on equipment found in a wind turbine (L2 - Knowledge)

ELEMENT 6.1 - PRE-USE INSPECTION

The instructor shall:

6.1.1 Lead a discussion about the importance of formal and pre-use inspections of firefighting equipment in a wind turbine

6.1.2 Explain the importance of carrying out a pre-use inspection of firefighting equipment in the area of the wind turbine where the participant will be working

6.1.3 Demonstrate how to perform a pre-use inspection of fire extinguishers focusing on the similarities and differences in design and functionality between different types and products and covering the following:
   a. Markings and labels
   b. Extinguishing media
   c. Absence of significant damage
   d. Contents as indicated on the gauge
   e. Condition of hoses and accessories
ELEMENT 6.2 - CORRECT USE OF FIREFIGHTING EQUIPMENT

The instructor shall:

6.2.1 Lead a discussion about the advantages and disadvantages of typical firefighting equipment found in wind turbines

6.2.2 Lead a discussion about the importance of and how to assess a safe distance for the use of firefighting equipment

6.2.3 Explain and demonstrate safe distance and precautions with various firefighting equipment

6.2.4 Explain and demonstrate correct, efficient and safe use of various firefighting equipment in a wind turbine like environment

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

Where possible and in accordance with local legislation this demonstration should be conducted using live fire and live extinguishing agents.
Lesson 7 - EVALUATION

15 min.

The aim of this lesson is to enable the participants 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 their way of work. Additionally, the aim is to give the participants the opportunity to conduct an open-minded written and oral formative evaluation of the training.

To successfully complete this lesson of the module each participant shall:

1) Show commitment to avoid incidents requiring the skills in this module
2) Participate in the formative evaluation of the module in a constructive manner
3) Conduct an online or written formative evaluation of the module.

ELEMENT 7.1 - REFLECTION SESSION

The instructor shall:

7.1.1 Give the participants final feedback on the formal participant performance assessment and inform them whether they have passed (failed participants must be informed individually prior to the reflection session)

7.1.2 Help the participants 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 their way of work. This can be achieved by an individual reflection session, question session and/or class discussion

7.1.3 Re-present the overall aims and objectives of the course for the participants comparison on their learning outcome and meeting of their previously stated expectations of the course

7.1.4 Give an overall feedback and feed forward on the participants learning outcome

7.1.5 Encourage the participants to examine and grow awareness of what specific elements in their own wind turbine type and environment differ from the training scenario environment (to visualize and enhance learning transfer) and to discuss with colleagues the methods and techniques under the local specific conditions identified after course completion

ELEMENT 7.2 - FORMATIVE EVALUATION

The instructor shall:

7.2.1 Respond on relevant elements of any oral feedback from the participants.
Basic Safety Training

**Online Partial** Refresher (BSTR-P)

(Onshore/Offshore)

Module 4 – Working at height

Version 1

April 2020
12 **BSTR-P MODULE 4 – WORKING AT HEIGHTS**

12.1 **Aims and objectives of the BSTR-P Working at heights module**

The aim of this BSTR-P Working at heights partial refresher module is to review and build on previously gained knowledge and skills through theoretical and practical training so that course participants can use basic personal protective equipment and perform safe work at heights and safe and comprehensive basic rescue from heights in the wind industry and in a wind turbine environment.

This BSTR-P Working at heights module shall ensure that course participants can:

1) **Explain** the hazards and risks associated with working at heights in a wind turbine. (L2 – Knowledge)

2) **Explain** how to identify PPE, including identification of European / Global standard markings on harness, hard hats, lanyards and other PPE. (L2 – Knowledge)

3) **Demonstrate** how to correctly pre-use inspect, service, store and correctly fit harnesses, fall arrest lanyards, work positioning lanyards and other PPE. (L3 – Skills)

4) **Demonstrate** correct use of the relevant PPE, e.g. harnesses, fall arrest lanyards, guided type fall arresters and work positioning lanyards. These include correct identification of anchor points (L3 – Skills)

5) **Explain** correct rigging of evacuation devices. (L2 – Knowledge)
12.2 BSTR-P Working at heights instructor to participant ratio

The ratio shown for theory sessions indicates the maximum number of course participants attending the course.

Other ratios indicate the maximum number of course participants to be supervised by an instructor during each activity.

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
<th>Instructor to Delegate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTR-P Working at Heights</td>
<td>Theory</td>
<td>1:12</td>
</tr>
<tr>
<td></td>
<td>Practical</td>
<td>1:6</td>
</tr>
</tbody>
</table>

*Table 12-2 - GWO BSTR-P Working at height module instructor to participant ratio*

12.3 Duration of the BSTR-P Working at heights module

The total contact time for completing this working at height partial refresher module is estimated to be 3 hours and 35 minutes at the instructor to participant ratios shown in table 12-2.

The training provider must ensure that sufficient time is allowed for participants to share their experiences related to first aid in a way that is constructive for the entire class.

12.4 BSTR-P Working at heights module timetable

The order in which the elements of this BSTR-P module is delivered may vary.

The expected duration of each lesson is shown in table 12-4.

The training provider may choose to deliver elements of the training according to other timetables, provided that the practical elements are not reduced in length.

Theoretical elements should be delivered during the practical exercises when feasible.
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Element</th>
<th>Approx. Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Introduction</td>
<td>1.1 Introductions and expectations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.2 Instructor and participant presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3 Aims objectives and agenda</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.4 Motivation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.5 On-going assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15 min.</td>
</tr>
<tr>
<td>2 Knowledge review</td>
<td>2.1 Inspection of PPE, rescue and evacuation device</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.2 Working at height PPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.3 Fall prevention and fall arrest systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.4 Rescue and evacuation devices</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>30 min.</td>
</tr>
<tr>
<td>3 Dropped objects</td>
<td>3.1 Risks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2 Risk reduction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15 min.</td>
</tr>
<tr>
<td>4 PPE Review exercises</td>
<td>4.1 Pre-use inspection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.2 Correct use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>30 min.</td>
</tr>
<tr>
<td>5 Theory</td>
<td>5.1 Safe and competent work and rescue at heights</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.2 Correct fitting of a harness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.3 Attachment points (harness)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.4 Anchor points</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.5 Loads and angles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.6 Falls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.7 Suspension trauma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.8 Double and twin fall arrest lanyard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.9 Rescue Kit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>50 min.</td>
</tr>
<tr>
<td>6 Individual practical review exercises</td>
<td>6.1 Fall prevention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.2 Attaching a guided type fall arrester</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.3 Fall arrest lanyards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.4 Rescue equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>60 min.</td>
</tr>
<tr>
<td>7 Evaluation</td>
<td>7.1 Reflection session</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.2 Formative evaluation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15 min.</td>
</tr>
<tr>
<td></td>
<td>GRAND TOTAL</td>
<td>215 min.</td>
</tr>
</tbody>
</table>

*Table 12-4 - GWO BSTR-P Working at height module timetable*
12.5 Detailed description of the BSTR-P Working at heights module

The learning outcomes specified for this BSTR-P Working at heights module are:

Lesson 1 - INTRODUCTION

15 min.

The aim of this lesson is to introduce the course participants to the course, each other, the virtual classroom and what is expected of them during the course.

To successfully complete this lesson of the module each course participant shall be able to:

1) Describe how the training will be managed and their expected interactions
2) Recognize who the instructor and other participants are
3) Describe the aims, objectives and agenda of the training
4) Explain the importance and relevance of this training and their own expectations for the course
5) Explain how they will be assessed during this training

ELEMENT 1.1 - INTRODUCTIONS AND EXPECTATIONS

The instructor shall:

1.1.1 Explain how the online training session will be managed, covering:
   a. Instructor and participant interactions
   b. Questions and answers
   c. Participant demonstrations

ELEMENT 1.2 - INSTRUCTOR & PARTICIPANT PRESENTATION

The instructor shall:

1.2.1 Ensure that all course participants are registered with WINDA profile and have provided their WINDA ID number prior to completing the training course.
1.2.2 Give a short introduction, including their backgrounds as instructors

Each course participant shall:

1.2.3 Give a short introduction, including:
   a. Their job functions
   b. Onshore or offshore experience
   c. Length of employment in the wind industry
d. Expected primary geographic work location

1.2.4 Describe their own expectations for the course

ELEMENT 1.3 - AIMS, OBJECTIVES AND AGENDA

The instructor shall:

1.3.1 Explain the overall aims & objectives of this module
1.3.2 Show the agenda of the training including breaks

ELEMENT 1.4 - MOTIVATION

The instructor shall:

1.4.1 Explain the relevance of this module and why working at height knowledge and skills are relevant
1.4.2 Explain the importance of personal involvement in the course
1.4.3 Describe how the Delegates will be challenged, and why

ELEMENT 1.5 - ONGOING ASSESSMENT

The instructor shall:

1.5.1 Explain the reasons for the on-going assessment
1.5.2 Explain how the course participants will be assessed during the training including the GWO participant assessment form and its use
1.5.3 Explain what is expected of the course participants
Lesson 2 - KNOWLEDGE REVIEW

30 min.

The aim of this lesson is to reduce the risk of short-term and long-term injury when working at height in a wind turbine, and to provide areas for the training staff to focus on, by reviewing the course participants knowledge of working at height.

To successfully complete this lesson each course participant shall be able to:

1) **Explain** the importance of pre-use and formal inspections of fall protection equipment (L3 – Attitude)
2) **Explain** when PPE is required for working at height and their legal responsibilities towards inspection of PPE for working at height (L2 – Knowledge)
3) **Explain** when Fall Arrest Systems and work positioning devices are required and their legal responsibilities towards those (L2 – Knowledge)
4) **Explain** when various rescue and evacuation equipment is required, the legal inspection requirements for these and the function of the individual parts of the rescue equipment (L2 – Knowledge)

ELEMENT 2.1 - INSPECTION OF PPE, RESCUE AND EVACUATION DEVICE

The instructor shall:

2.1.1 Lead a discussion about the importance of performing a pre-use inspection of fall protection equipment
2.1.2 Lead a discussion about the requirements for certification and formal inspection of PPE used for working at height

ELEMENT 2.2 - WORKING AT HEIGHT PPE

The instructor shall:

2.2.1 Lead a discussion about PPE for working at height, covering the following:
   a. When to use PPE for working at height
   b. Legislative requirements for PPE used for working at height
   c. Participants legal responsibilities towards PPE used for working at height

ELEMENT 2.3 - FALL PREVENTION AND FALL ARREST SYSTEMS

The instructor shall:

2.3.1 Lead a discussion about fall prevention (work positioning) and fall arrest systems, covering the following:
   a. Why fall prevention is preferred to fall arrest
b. When to use fall arrest systems
c. The legislative requirements, inspection
d. The compliance of rail/ wire systems

**ELEMENT 2.4 - RESCUE AND EVACUATION DEVICES**

The instructor shall:

2.4.1 Lead a discussion about rescue and evacuation equipment, covering the following:
   a. When to use rescue and evacuation devices
   b. The function of rescue and evacuation devices
   c. The legislative requirements for rescue and evacuation devices
   d. The requirements for inspection/ certification (vacuum packed/ not vacuum packed)

**Lesson 3 - DROPPED OBJECTS**

15 Min.

The aim of this lesson is to reduce the risk of injuries arising from dropped objects in and around wind turbines.

To successfully complete this lesson each course participant shall be able to:

1) **Explain** the risks posed by dropped objects. (L2 – Knowledge)
2) **Explain** how to reduce the risks of dropping objects. (L2 – Knowledge)

**ELEMENT 3.1 - RISKS**

The instructor shall:

3.1.1 Lead a discussion about the risks posed by dropped objects, covering the following:
   a. Items that can become a dropped object
   b. Injuries and injury severity that can occur as a result of a dropped object

**ELEMENT 3.2 - RISK REDUCTION**

The instructor shall:

3.2.1 Lead a discussion about reducing the risk of dropped objects, covering the following:
   a. Tool attachment and tethering
b. Closed top tool bags

c. Closing hatches and covering openings

d. Staying out of the drop zone of workers at height

Lesson 4 - PPE REVIEW EXERCISES

30 Min.

The aim of this lesson is to reduce the risk of injury in the wind industry by refreshing the participants' skills in the identification and pre-use inspection of fall protection equipment. Furthermore, it will refresh the participants' knowledge about basic height rescue, PPE and personal fall protection equipment use.

To successfully complete this lesson each course participant shall be able to:

1) **Demonstrate** the ability to correctly perform a pre-use inspection of their working at height PPE (L3 – Skills)

2) **Explain** the importance of and how to correctly use, manage, and control PPE used for working at height (L3 – Attitude)

**Note:** The instructor shall verify the skills in learning objectives using a live video link. Demonstration of these skills will require the course participant to have this equipment available therefore the course participants should be on-site while performing these skills.

**ELEMENT 4.1 - PRE-USE INSPECTION**

The instructor shall:

4.1.1 Explain and demonstrate how to perform a pre-use inspection, with a focus on a generic approach, of the following equipment:

a. Harnesses

b. Fall arrest systems

c. Fall restraint systems

d. Self-retractable lines

**Note:** For a detailed description of the elements of the pre-use inspection for each of the items of equipment in this lesson refer to the GWO BST initial standard Lessons 3 to 6.
ELEMENT 4.2 - CORRECT USE

The instructor shall:

4.2.1 Lead a discussion about the value and importance of correct use and control of fall protection equipment

4.2.2 Explain and demonstrate the proper use, management, and control of the following:
   a. Harnesses
   b. Fall restraint systems
   c. Fall arrest systems

Lesson 5 - THEORY

50 min.

The aim of this lesson is to reduce the risk of short-term and long-term injury when working at height in a wind turbine by refreshing the participants knowledge of working at height theory.

To successfully complete this lesson each course participant shall be able to:

1) Explain safe and competent work and rescue at height (L2 – Knowledge)
2) Explain the importance of correctly fitting a harness (L3 – Attitude)
3) Explain the use of attachment points (L2 – Knowledge)
4) Explain the use of anchor points (L2 – Knowledge)
5) Explain how loads and angles can influence the strength of lanyards and slings (L2 – Knowledge)
6) Explain common fall indicators on equipment (L2 – Knowledge)
7) Explain the risk of suspension trauma (L2 – Knowledge)
8) Explain how to use a double and twin fall arrest lanyard (L2 – Knowledge)
9) Explain how to perform a pre-use inspection of rescue and evacuation kits (L2 – Knowledge)

ELEMENT 5.1 - SAFE AND COMPETENT WORK AND RESCUE AT HEIGHTS

The instructor shall:

5.1.1 Lead a discussion about how to keep oneself and others safe during work at height and rescue situations
ELEMENT 5.2 - CORRECT FITTING OF A HARNESS

The instructor shall:

5.2.1 Lead a discussion about the importance of always adjusting a full body harness so that it fits correctly

ELEMENT 5.3 - ATTACHMENT POINTS (HARNESS)

The instructor shall:

5.3.1 Lead a discussion about the importance of correctly identifying and using attachment points on harnesses
5.3.2 Explain and demonstrate how to correctly use attachment points
5.3.3 Explain the difference between an attachment point and an anchor point

ELEMENT 5.4 - ANCHOR POINTS

Training Staff shall:

5.4.1 Lead a discussion about the importance of selecting the correct anchor points for fall protection, fall arrest, evacuation and rescue equipment
5.4.2 Lead a discussion about the differences between certified and structural anchor points
5.4.3 Show examples of and explain the requirements of and how to recognise certified anchor points
5.4.4 Show examples of and explain the characteristics of and how to recognise structural anchor points

ELEMENT 5.5 - LOADS AND ANGLES

The instructor shall:

5.5.1 Lead a discussion about the importance of controlling the angles of lanyards and slings during normal use and rescue scenarios
5.5.2 Explain the difference between a static and dynamic load
5.5.3 Explain how angles can influence the strength of lanyards and slings
ELEMENT 5.6 - FALLS

The instructor shall:

5.6.1 Show examples of and explain fall indicators on equipment
5.6.2 Lead a discussion about how different situations can influence the approach to the rescue, covering:
   a. Presence or absence of injuries
   b. Consciousness of the person needing to be rescued

ELEMENT 5.7 - ORTHOSTATIC SHOCK WHILE SUSPENDED (SUSPENSION TRAUMA)

The instructor shall:

5.7.1 Lead a discussion about the risks posed by suspension trauma and situations where this risk is present, and strategies and equipment use to mitigate this risk

ELEMENT 5.8 - DOUBLE AND TWIN FALL ARREST LANYARDS

The instructor shall:

5.8.1 Lead a discussion about the differences and similarities in design, function and usage between a double and a twin fall arrest lanyard
5.8.2 Explain and demonstrate how to use double fall arrest lanyard
5.8.3 Explain and demonstrate how to use twin fall arrest lanyard
5.8.4 Demonstrate the correct way of using twin and single fall arrest lanyards, including double hook climbing on ladder and required and recommended distance between twin fall arrest lanyard anchor points when climbing ladders

ELEMENT 5.9 - RESCUE KIT

The instructor shall:

5.9.1 Lead a discussion about the differences in design, function and usage between rescue and evacuation kit products
5.9.2 Show examples of and explain the content of rescue and evacuation kits
5.9.3 Explain situations where a pre-use inspection of rescue and evacuation equipment is not required
5.9.4 Demonstrate how to perform a pre-use inspection of rescue and evacuation kits
Lesson 6 - INDIVIDUAL PRACTICAL REVIEW EXERCISES

60 Min.

The aim of this lesson is to reduce the risk of injury through incorrect working at height techniques by assessing and refreshing the participants knowledge, skills and competencies in working at height, reinforcing and emphasize the importance of being able to carry out a rescue at any time when working in wind turbines on a daily basis.

To successfully complete this lesson each course participant shall be able to:

1) **Discuss** and show examples of how to safely and correctly use work positioning lanyards to prevent falls (L2 – Knowledge and L2 - Skills)

2) **Discuss** and show examples of how to safely and correctly attach a guided type fall arrest slider or glider to their harness and to the rail or wire of a guided type fall arrest system ((L2 – Knowledge and L2 - Skills)

3) **Discuss** and show examples of how to to safely and correctly attach fall arrest lanyards to a vertical ladder system ((L2 – Knowledge and L2 - Skills)

4) **Discuss** and show examples of how to safely and correctly attach fall arrest lanyards to a vertical ladder system (L2 – Knowledge and L2 - Skills)

**Note:** The instructor shall assess the participants’ knowledge in these learning objectives using a live video link.

Discussion of this knowledge will require the instructor to be able to demonstrate for the course participant using rescue devices, fall arrest lanyards and workposition lanyards after which the participants must talk the instructor through correctly using the equipment.

For learning objective 4 please refer to element 6.4.2 for a list of skills required to reach this learning objective.

**ELEMENT 6.1 - FALL PREVENTION**

The instructor shall:

6.1.1 Lead a discussion about the importance of preventing falls using work positioning lanyards

6.1.2 Demonstrate how to safely and correctly attach work positioning lanyards to a ladder to prevent a fall

**ELEMENT 6.2 - ATTACHING A GUIDED TYPE FALL ARRESTER**

The instructor shall:

6.2.1 Lead a discussion about the importance of always using guided type fall arrest when climbing, and the potential challenges of connecting the slider or glider to the rail or wire
6.2.2 Explain the differences in design, functionality and usage between slider and glider products for guided type vertical fall arrest rail and wire systems

6.2.3 Demonstrate how to choose the correct slider or glider for a guided type vertical fall arrest system

6.2.4 Demonstrate how to safely and correctly attach sliders and gliders to the rail or wire

6.2.5 Demonstrate how to safely and correctly attach the slider or glider to the harness

ELEMENT 6.3 - FALL ARREST LANYARDS

The instructor shall:

6.3.1 Lead a discussion about the importance and challenges of using fall arrest lanyards in a wind turbine and on a vertical ladder

6.3.2 Demonstrate how to safely and correctly attach fall arrest lanyards to a vertical ladder system

6.3.3 Demonstrate how to safely and correctly attach fall restraint and fall arrest lanyards to the harness

6.3.4 Demonstrate how to correctly use twin and single fall arrest lanyards whilst double hook climbing maintaining the correct distance between the anchor points

ELEMENT 6.4 - RESCUE EQUIPMENT

The instructor shall:

6.4.1 Lead a discussion about the importance of safe and efficient rigging of rescue equipment

6.4.2 Explain and demonstrate how to rig and rescue devices and accessories in both an active and passive setup, covering the following:
   a. How to attach the device to an anchor point
   b. How to rig the device onto a vertical ladder stile and reinforced rung using slings (both centrally and to one side of the ladder)
   c. How to use the integrated friction device (pig tail, bull horn or similar) to divert the rope
   d. How to rig the device with a deflection carabiner
   e. How to secure the rope
   f. How to use a rope clamp for rescue

**Note:** The instructor shall assess each course participant’s knowledge of how to safely and correctly perform each of these skills (see learning objective 4).
Lesson 7 - EVALUATION

15 min.

The aim of this lesson is to enable the participants 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 their way of work. Additionally, the aim is to give the participants the opportunity to conduct an open-minded written and oral formative evaluation of the training.

To successfully complete this lesson of the module each participant shall:

1) Show commitment to avoid incidents requiring the skills in this module
2) Participate in the formative evaluation of the module in a constructive manner
3) Conduct an online or written formative evaluation of the module.

ELEMENT 7.1 - REFLECTION SESSION

The instructor shall:

7.1.1 Give the participants final feedback on the formal participant performance assessment and inform them whether they have passed (failed participants must be informed individually prior to the reflection session)
7.1.2 Help the participants 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 their way of work. This can be achieved by an individual reflection session, question session and/or class discussion
7.1.3 Re-present the overall aims and objectives of the course for the participants comparison on their learning outcome and meeting of their previously stated expectations of the course
7.1.4 Give an overall feedback and feed forward on the participants learning outcome
7.1.5 Encourage the participants to examine and grow awareness of what specific elements in their own wind turbine type and environment differ from the training scenario environment (to visualize and enhance learning transfer) and to discuss with colleagues the methods and techniques under the local specific conditions identified after course completion

ELEMENT 7.2 - FORMATIVE EVALUATION

The instructor shall:

7.2.1 Respond on relevant elements of any oral feedback from the participants.
Module 5 - Sea Survival

Version 1

April 2020
13 **BSTR-P MODULE 5 –SEA SURVIVAL**

13.1 **Aims and objectives of the BSTR-P Sea survival module**

The aim of this BSTR-P Sea survival partial refresher training course is to refresh the participants basic knowledge to enable them 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 BSTR-P Sea survival module shall ensure that the course participants can:

1) Explain 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.

2) Explain 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.

3) Explain the advantages and limitations of personal LSA and PPE and usage in a correct and safe manner.

4) Explain GMDSS (Global Maritime Distress and Safety Systems) and SAR (Search and Rescue).

5) Explain 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.

6) Explain how to ensure safe conduct on installations, vessels and WTG’s during normal operations and in case of emergencies and evacuation.

7) Explain how to conduct safe transfer of themselves and equipment between dock and vessel and WTG and vessel. Furthermore, to give the course participants knowledge of how to assist in MOB situations.

8) Reflect on and process their learning outcome and key takeaways from the module, aiming to achieve a high learning transfer from the module to their daily work. Additionally, the aim is to give the course participants the opportunity to conduct an open-minded written and oral formative evaluation of the training.

**Note:** 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”.

---

Global Wind Organisation

www.globalwindsafety.org
13.2 Instructor to participant ratio

The ratio shown indicates the maximum number of course participants that shall attend the course.

Other ratios indicate the maximum number of course participants to be supervised by an instructor during each activity.

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
<th>Instructor to Delegate Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTR-P Sea Survival</td>
<td>Theory</td>
<td>1:12</td>
</tr>
<tr>
<td></td>
<td>Practical</td>
<td>1:6</td>
</tr>
</tbody>
</table>

*Table 13-2 – GWO BSTR-P Sea survival module instructor to participant ratio*

13.3 Duration of the BSTR-P Sea survival module

The total contact time for completing this sea survival partial refresher module is estimated to be 4 hours and 20 minutes at the instructor to participant ratios shown in table 13-2.

The training provider must ensure that sufficient time is allowed for participants to share their experiences related to first aid in a way that is constructive for the entire class.

13.4 BSTR-P Fire awareness module timetable

The order in which the elements of this BSTR-P module is delivered may vary.

The expected duration of each lesson is shown in table 13-4.

The training provider may choose to deliver elements of the training according to other timetables, provided that the practical elements are not reduced in length.

Theoretical elements should be delivered during the practical exercises when feasible.
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Element</th>
<th>Approx. Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>15 min.</td>
</tr>
<tr>
<td></td>
<td>1.1</td>
<td>Introductions and expectations</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>Instructor &amp; delegate presentation</td>
</tr>
<tr>
<td></td>
<td>1.3</td>
<td>Aims, objectives and agenda</td>
</tr>
<tr>
<td></td>
<td>1.4</td>
<td>Motivation</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>Ongoing assessment</td>
</tr>
<tr>
<td>2</td>
<td>Legislation</td>
<td>15 min.</td>
</tr>
<tr>
<td></td>
<td>2.1</td>
<td>Roles and responsibilities on site</td>
</tr>
<tr>
<td></td>
<td>2.2</td>
<td>Global legislation</td>
</tr>
<tr>
<td></td>
<td>2.3</td>
<td>National legislation</td>
</tr>
<tr>
<td>3</td>
<td>Exposure, Cold Shock, Hypothermia and Drowning</td>
<td>40 min.</td>
</tr>
<tr>
<td></td>
<td>3.1</td>
<td>Exposure</td>
</tr>
<tr>
<td></td>
<td>3.2</td>
<td>Cold Shock</td>
</tr>
<tr>
<td></td>
<td>3.3</td>
<td>Drowning</td>
</tr>
<tr>
<td></td>
<td>3.4</td>
<td>Hypothermia</td>
</tr>
<tr>
<td>4</td>
<td>Life Saving Appliances and PPE</td>
<td>30 min.</td>
</tr>
<tr>
<td></td>
<td>4.1</td>
<td>Personal LSA and PPE</td>
</tr>
<tr>
<td></td>
<td>4.2</td>
<td>Collective LSA</td>
</tr>
<tr>
<td>5</td>
<td>SAR and GMDSS</td>
<td>20 min.</td>
</tr>
<tr>
<td></td>
<td>5.1</td>
<td>SAR</td>
</tr>
<tr>
<td></td>
<td>5.2</td>
<td>GMDSS and transponders</td>
</tr>
<tr>
<td></td>
<td>5.3</td>
<td>Actions to enhance detection</td>
</tr>
<tr>
<td>6</td>
<td>Practical Sea Survival</td>
<td>60 min.</td>
</tr>
<tr>
<td></td>
<td>6.1</td>
<td>Correct donning and use of LSA and PPE</td>
</tr>
<tr>
<td></td>
<td>6.2</td>
<td>Risks of evacuation &amp; release into water</td>
</tr>
<tr>
<td></td>
<td>6.3</td>
<td>Correct usage of life raft</td>
</tr>
<tr>
<td></td>
<td>6.4</td>
<td>Helicopter rescue from water</td>
</tr>
<tr>
<td></td>
<td>6.5</td>
<td>Sea survival methods</td>
</tr>
<tr>
<td>7</td>
<td>Safe transfer</td>
<td>70 min.</td>
</tr>
<tr>
<td></td>
<td>7.1</td>
<td>Transfer vessels</td>
</tr>
<tr>
<td></td>
<td>7.2</td>
<td>Safety introduction onboard transfer vessel</td>
</tr>
<tr>
<td></td>
<td>7.3</td>
<td>Hazards related to different types of transfers</td>
</tr>
<tr>
<td></td>
<td>7.4</td>
<td>Transfer between dock and vessel</td>
</tr>
<tr>
<td></td>
<td>7.5</td>
<td>Transfer between vessel and WTG</td>
</tr>
<tr>
<td></td>
<td>7.6</td>
<td>Transfer from vessel to vessel</td>
</tr>
<tr>
<td></td>
<td>7.7</td>
<td>Safe handling of equipment and storage</td>
</tr>
<tr>
<td></td>
<td>7.8</td>
<td>MOB procedures</td>
</tr>
<tr>
<td></td>
<td>7.9</td>
<td>Pre-use inspection of PPE</td>
</tr>
<tr>
<td>8</td>
<td>Installations, vessels and WTGS</td>
<td>15 min.</td>
</tr>
<tr>
<td></td>
<td>8.1</td>
<td>Safety on board</td>
</tr>
<tr>
<td></td>
<td>8.2</td>
<td>Contingency plans</td>
</tr>
<tr>
<td>10</td>
<td>Evaluation</td>
<td>15 min.</td>
</tr>
<tr>
<td></td>
<td>10.1</td>
<td>Reflection session</td>
</tr>
<tr>
<td></td>
<td>10.2</td>
<td>Formative evaluation</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td><strong>280 min.</strong></td>
</tr>
</tbody>
</table>

Table 13-4 - GWO BSTR-P Sea survival module timetable
13.5 Detailed description of BSTR-P sea survival module

The learning outcomes specified for the BSTR-P sea survival Module are:

Lesson 1 - INTRODUCTION

15 min.

The aim of this lesson is to introduce the course participants to the course, each other, the virtual classroom and what is expected of them during the course.

To successfully complete this lesson of the module each course participant shall be able to:

1) Describe how the training will be managed and their expected interactions
2) Recognize who the instructor and other participants are
3) Describe the aims, objectives and agenda of the training
4) Explain the importance and relevance of this training and their own expectations for the course
5) Explain how they will be assessed during this training

ELEMENT 1.1 - INTRODUCTIONS AND EXPECTATIONS

The instructor shall:

1.1.1 Explain how the online training session will be managed, covering:
   a. Instructor and participant interactions
   b. Questions and answers
   c. Participant demonstrations

ELEMENT 1.2 - INSTRUCTOR & DELEGATE PRESENTATION

The instructor shall:

1.2.1 Ensure that all course participants are registered with WINDA profile and have provided their WINDA ID number prior to completing the training course.
1.2.2 Give a short introduction, including their backgrounds as instructors

Each course participant shall:

1.2.3 Give a short introduction, including:
   a. Their job functions
   b. Onshore or offshore experience
   c. Length of employment in the wind industry
d. Expected primary geographic work location

1.2.4 Describe their own expectations for the course

ELEMENT 1.3 - AIMS, OBJECTIVES AND AGENDA

The instructor shall:

1.3.1 Explain the overall aims & objectives of this module
1.3.2 Show the agenda of the training including breaks

ELEMENT 1.4 - MOTIVATION

The instructor shall:

1.4.1 Explain the relevance of this module and why sea survival preparedness and skills are relevant
1.4.2 Explain the importance of personal involvement in the course
1.4.3 Describe how the Delegates will be challenged, and why

ELEMENT 1.5 - ONGOING ASSESSMENT

The instructor shall:

1.5.1 Explain the reasons for the on-going assessment
1.5.2 Explain how the course participants will be assessed during the training including the GWO participant assessment form and its use
1.5.3 Explain what is expected of the course participants

Lesson 2 - LEGISLATION

15 min.

The aim of this lesson is to ensure that the course participants are aware of the roles, responsibilities and rules that apply to offshore wind farms by refreshing their knowledge about site organisation and relevant legislation.

To successfully complete this lesson each course participant shall be able to:

1) **Describe** site organization and the various units on a site. (L1 – Knowledge)
2) **Describe** which global legislation is relevant to sea survival and their responsibilities under this. (L1 – Knowledge)
3) **Describe** which national or regional legislation is relevant to sea survival and their responsibilities under this. (L1 – Knowledge)
ELEMENT 2.1 - ROLES AND RESPONSIBILITIES ON SITE

The instructor shall:

2.1.1 Lead a Discussion about organisation of and the site units found in offshore wind farms

ELEMENT 2.2 - GLOBAL LEGISLATION

The instructor shall:

2.2.1 Describe which global legislation is applicable to sea survival
2.2.2 Lead a discussion about the legal responsibilities that the participants have under global legislation

ELEMENT 2.3 - NATIONAL LEGISLATION

The instructor shall:

2.3.1 Describe which regional legislation is applicable to sea survival
2.3.2 Lead a discussion about the importance of knowing the applicable country and region–specific legislation and the responsibilities that the places on the course participants

Lesson 3 - EXPOSURE, COLD SHOCK, HYPOTHERMIA AND DROWNING

40 min.

The aim of this lesson is to enhance the course participants chances of survival at sea by refreshing their understanding of the importance of correct clothing and conduct in an offshore wind farm environment. Additionally, this lesson will refresh the course participants knowledge of detecting and treating various stages of cold shock, hypothermia and drowning related to exposure of the human body to the elements in an offshore wind environment.

To successfully complete the lesson each course participant shall be able to:

1) **Explain** the human body’s reaction to the exposure to different offshore environments and what precautions to take (L2 – Knowledge)
2) **Explain** how the human body can react to cold shock and methods that can prevent this (L2 – Knowledge)
3) **Explain** how to detect the symptoms of and the correct first aid procedures for drowning (L2 – Knowledge)
4) **Explain** how to detect the symptoms of and how to administer correct first aid for hypothermia (L2 – Knowledge)
ELEMENT 3.1 - EXPOSURE
The instructor shall:

3.1.1 Lead a discussion about different types of exposure in offshore environments and relevant precautions that will reduce the risks associated with these

ELEMENT 3.2 - COLD SHOCK
The instructor shall:

3.2.1 Lead a discussion about how the human body can react to cold shock and relevant preventative measures
3.2.2 Explain the various symptoms of and how to behave in relation to cold shock

ELEMENT 3.3 - DROWNING
The instructor shall:

3.3.1 Lead a discussion about the symptoms of and the correct first aid treatment for drowning
3.3.2 Explain secondary drowning risks, causes and mitigations

ELEMENT 3.4 - HYPOTHERMIA
The instructor shall:

3.4.1 Lead a discussion about hypothermia covering the following:
   a. Preventative measures
   b. The onset stages
   c. The symptoms of each stage
   d. Correct first aid treatment for each stage

Lesson 4 - LIFE SAVING APPLIANCES AND PPE

30 min.

The aim of this lesson is to enable the course participants to enhance their chances of survival at sea by refreshing their understanding of the advantages, limitations and safe and correct usage of different types of personal and collective LSA and PPE.

To successfully complete this lesson each course participant shall be able to:

1) Explain the advantages, limitations and usage of common personal LSA and PPE found in the offshore wind industry. (L2 – Knowledge)
2) **Explain** the characteristics of and differences between different types of suits, anti-exposure (transfer suit) and immersion suits (Vessel evacuation), and the maintenance and storage of these. (L2 – Knowledge)

3) **Explain** the advantages, limitations and usage of common collective LSA found in the offshore wind industry (L2 – Knowledge)

**ELEMENT 4.1 - PERSONAL LSA AND PPE**

The instructor shall:

4.1.1 Show examples of and lead a discussion about the advantages, limitations and usage of the different personal LSA and PPE related to the offshore wind industry covering:
   a. Different types of PLB
   b. Life jackets
   c. Anti-exposure suits (transfer suit)
   d. Immersion suit (vessel evacuation)

4.1.2 Explain the correct use of the different personal LSA and PPE and importance of familiarization of the equipment

4.1.3 Demonstrate how to perform a pre-use inspection of:
   a. Different types of PLB
   b. Life jackets
   c. Anti-exposure suits (transfer suit)
   d. Immersion suit (vessel evacuation)

4.1.4 Lead a discussion about the importance of, and correct methods for maintenance and storage of personal LSA and PPE

**ELEMENT 4.2 - COLLECTIVE LSA**

The instructor shall:

4.2.1 Lead a discussion about the advantages, limitations and usage of different collective LSA found in the offshore wind industry, covering the following:
   a. Life rafts
   b. Lifeboats
   c. Marine evacuation systems (MES)
Lesson 5 - SAR AND GMDSS

20 min.

The aim of this lesson is to enable the course participants to enhance their chances of detection by SAR operations by refreshing and enhancing their knowledge related to GMDSS (Global Maritime Distress and Safety Systems) and SAR (Search and Rescue) operations.

This will enable the course participants 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 lesson each course participant shall be able to:

1) **Explain** how SAR operations will enhance their chances of survival at sea (L2 – Knowledge)

2) **Explain** how the GMDSS and transponders can enhance the chances of being detected by SAR operations (L2 – Knowledge)

3) **Explain** typical actions that can enhance detection by SAR operations (L2 – Knowledge)

**ELEMENT 5.1 - SAR**

The instructor shall:

5.1.1 Lead a discussion about SAR operations and how these will enhance the chances of survival at sea

5.1.2 Lead a discussion about the potential limitations of SAR operations like the visibility of people in the water and poor weather conditions

**ELEMENT 5.2 - GMDSS AND TRANSPONDERS**

The instructor shall:

5.2.1 Show examples of and lead a discussion about how typical global maritime distress and safety systems (GMDSS) including transponders and locators can enhance the chances of being located by SAR operations, covering the following:

   a. Emergency Positioning Indicating Radio Beacon (EPIRB)
   b. Search and Rescue Transponder (SART)
   c. Personal Locating Beacon (PLB)
ELEMENT 5.3 - ACTIONS TO ENHANCE DETECTION

The instructor shall:

5.3.1 Show examples of and lead a discussion about actions that can enhance detection by SAR operations

Lesson 6 - PRACTICAL SEA SURVIVAL

60 min.

The aim of this lesson is to enable the course participants to refresh their knowledge of the survival skills that will enhance the chance of individual and collective survival in an emergency at sea. Furthermore, it will refresh their skills in the correct donning and use of LSA and PPE.

To successfully complete this lesson each course participant shall be able to:

1) **Demonstrate** correct donning and use of LSA and PPE (by doing so be able to perform an effective buddy check), this shall include: (L3 – Skill)
   a. Immersion suits
   b. Transfer suits
   c. Life jackets
   d. Harness

2) **Explain** the risks related to evacuation and release into water (current, wave and swell and how to apply sea survival techniques) (L2 – Knowledge)

3) **Explain** the correct use of a life raft to enhance the chances of survival in an emergency at sea (L2 – knowledge)

4) **Explain** correct behaviour related to own rescue from water to helicopter without assistance from helicopter rescue swimmer (L2 – Knowledge)

5) **Explain** survival skills needed to survive an emergency at sea both by own means and in cooperation with others (L2 – Knowledge)

**Note:** The instructor shall verify the skills in learning objective via a live video link. Demonstration of these skills will require the course participant to have this equipment available therefore the course participants should be on-site while performing these skills.
ELEMENT 6.1 - CORRECT DONNING AND USE OF LSA AND PPE

The instructor shall:

6.1.1 Show examples of and explain the characteristics of LSA and PPE

6.1.2 Demonstrate the correct donning of LSA and PPE, covering the following:
   a. Immersion suits
   b. Transfer suits
   c. Life jackets
   d. Harness

6.1.3 Lead a discussion about the implications of incorrect donning of LSA and PPE

6.1.4 Lead a discussion about the importance and procedure for performing a buddy check

6.1.5 Lead a discussion about the potential exposures when using LSA and PPE in a WTG environment

ELEMENT 6.2 - RISKS OF EVACUATION AND RELEASE INTO WATER

The instructor shall:

6.2.1 Lead a discussion about the 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.)

ELEMENT 6.3 - CORRECT USAGE OF LIFE RAFT

The instructor shall:

6.3.1 Show examples of and explain how to inflate of a life raft

6.3.2 Explain and demonstrate methods of entering a life raft focusing on the pros and cons of each

6.3.3 Lead a discussion about how a life raft can enhance the chances of survival, covering the following:
   a. Immediate and further actions in a life raft
   b. The equipment in life rafts
   c. Righting a capsized life raft
   d. The stages of hypothermia and the symptoms and the correct First Aid treatment for each stage
   e. GMDSS including transponders and locators
   f. Emergency Positioning Indicating Radio Beacon (EPIRB)
g. Search and Rescue Transponder (SART)

h. Personal Locating Beacon (PLB)

i. Actions to enhance detection

**ELEMENT 6.4 - HELICOPTER RESCUE FROM WATER**

The instructor shall:

6.4.1 Lead a discussion about the fitting of a helicopter lifting sling, subsequent lifting and (simulated) entry into a rescue helicopter including:

a. Single lift

b. Body posture

c. Aircraft entry

**ELEMENT 6.5 - SEA SURVIVAL METHODS**

The instructor shall:

6.5.1 Lead a discussion about measures to enhance survival, covering the following:

a. Controlled entry into the water from a height

b. Heat Escape Lessening Posture (H.E.L.P.)

c. Individual swimming techniques

d. Collective swimming techniques

e. Collective techniques to prevent hypothermia

f. Bodily reaction related to Cold Shock and the related symptoms

g. The stages of hypothermia and the symptoms and the correct First Aid treatment
Lesson 7 - SAFE TRANSFER

70 min.

The aim of this lesson is to enable the course participants to reduce risks of transfer by renewing and expanding their knowledge of the risks of transfer and man overboard procedures and take the correct preventive measures into account by following procedures and use the available LSA and PPE in a correct and safe manner. Furthermore, it will refresh the skills needed for pre-use inspection of their PPE.

To successfully complete this lesson each course participant shall be able to:

1) **Explain** the importance of the safety introduction onboard transfer vessels (L2 – Knowledge)

2) **Explain** the hazards related to the different types of transfers and how to mitigate these hazards in each situation (dynamic/static – static/dynamic, dynamic/dynamic) (L2 – Knowledge)

3) **Explain** the risks associated with transfer of oneself and equipment between vessel and wind turbine (with and without a quick connector) (L2 – Knowledge)

4) **Explain** the risks associated with transfer of oneself and equipment between dock and vessel and between vessels (L2 – Knowledge)

5) **Explain** the importance of and methods for the safe handling of equipment and storage (L2 – Knowledge)

6) **Explain** how to act in the case of a man overboard situation (including themselves) using various man overboard procedures and equipment on installations, vessels or wind turbines individually and by assisted method (L2 – Knowledge)

7) **Demonstrate** how to perform a pre-use inspection of their PPE including quick connectors (L3 – Skill)

**ELEMENT 7.1 - TRANSFER VESSELS**

The instructor shall:

7.1.1 Explain the different types of transfer vessels commonly used by the offshore wind industry

7.1.2 Lead a discussion about various types of vessels the delegate may engage in a sea survival situation

**ELEMENT 7.2 - SAFETY INTRODUCTION ONBOARD TRANSFER VESSEL**

The instructor shall:

7.2.1 Lead a discussion about the contents and importance of the safety briefing on transfer vessels

Global Wind Organisation

www.globalwindsafety.org
7.2.2 Lead a discussion about safe conduct on board vessels

ELEMENT 7.3 - HAZARDS RELATED TO THE DIFFERENT TYPES OF TRANSFERS

The instructor shall:

7.3.1 Explain the hazards related to the different types of transfers and how to mitigate these hazards in each of the following situations:
   a. Dynamic to static
   b. Static to dynamic
   c. Dynamic to dynamic

ELEMENT 7.4 - SAFE TRANSFER BETWEEN DOCK AND VESSEL

The instructor shall:

7.4.1 Lead a discussion about the importance of safe transfer of self and equipment between dock and vessel
7.4.2 Lead a discussion about methods of safe handling of equipment and storage of equipment onboard vessels, installation and wind turbines
7.4.3 Explain and demonstrate safe transfer considerations and methods between the dock and a vessel

ELEMENT 7.5 - SAFE TRANSFERS BETWEEN VESSEL AND WIND TURBINE

The instructor shall:

7.5.1 Lead a discussion about the importance of identifying hazards relating to the transfer and the right to say stop/refuse to transfer, covering the following:
   a. Swells
   b. Marine growth
   c. Waves
   d. Equipment failure
7.5.2 Lead a discussion about safe transfer methods between vessel and wind turbine covering the following:
   a. Mitigation of the risks
   b. Transfer procedures
   c. The use of an SRL with and without quick connector
   d. The use of twin fall arrest lanyards
   e. The final decision whether to transfer or not lies with the transferee
7.5.3 Explain and demonstrate considerations and methods for transfer between vessels and wind turbines

Note This element shall be 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 sections:
   a. 4.4.3 Protection against falling: SRL on boat landing ladder
   b. 4.4.2.2. Roles of Supervisors, Vessel Captain, Deckhand and Passengers

ELEMENT 7.6 - SAFE TRANSFER FROM VESSEL TO VESSEL

The instructor shall:

7.6.1 Lead a discussion about the risks associated with and safe transfer methods and procedures between vessels
7.6.2 Explain and demonstrate considerations and methods for safe transfer between vessels

ELEMENT 7.7 - SAFE HANDLING OF EQUIPMENT AND STORAGE

The instructor shall:

7.7.1 Lead a discussion about the implications of, responsibilities for and best practice methods for handling and storing safety and other equipment
7.7.2 Show examples of and explain safe handling and storage of equipment

ELEMENT 7.8 - MOB PROCEDURES AND EQUIPMENT

The instructor shall:

7.8.1 Explain man overboard procedures on installations, vessels and wind turbines, including what to do if one falls overboard or sees a person falling overboard
7.8.2 Show examples of and explain the use of different types of recovery equipment and methods of use including:
   a. Recovery from water by own assistance
   b. Assisted recovery from water in cooperation between casualty and rescuer
   c. By means of cradle and rescue net
ELEMENT 7.9 - PRE-USE INSPECTION OF PPE

The instructor shall:

7.9.1 Lead a discussion about the importance of pre-use inspection of PPE prior to transfer

7.9.2 Demonstrate how to perform a pre-use inspection of PPE for working at height and transfer including quick connectors

Lesson 8 - INSTALLATIONS, VESSELS AND WTGS

15 min.

The aim of this lesson is to enable the course participants to act safely onboard installations, vessels and wind turbines during normal operations and in case of emergencies and evacuation through understanding the importance and locations of contingency plans.

To successfully complete this lesson each course participant shall be able to:

1) **Explain** the importance of general safety on board (L2 – Knowledge)

2) **Explain** where contingency plans on installations, vessels and wind turbines are typically located (L2 – Knowledge)

ELEMENT 8.1 - SAFETY ON BOARD

The instructor shall:

8.1.1 Explain general safety on board installations, vessels and WTGs

8.1.2 Lead a discussion about how can failing to adhere to general safety on board installations, vessels and WTGs lead sea survival situations

ELEMENT 8.2 - CONTINGENCY PLANS

The instructor shall:

8.2.1 Show examples of and explain where contingency plans on installations, vessels and wind turbines are typically located, at a minimum covering:

   a. Fire
   b. Man overboard
   c. Abandon ship
Lesson 9 - EVALUATION

15 min.

The aim of this lesson is to enable the participants 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 their way of work. Additionally, the aim is to give the participants the opportunity to conduct an open-minded written and oral formative evaluation of the training.

To successfully complete this lesson of the module each participant shall:

1) Show commitment to avoid incidents requiring the skills in this module
2) Participate in the formative evaluation of the module in a constructive manner
3) Conduct an online or written formative evaluation of the module.

ELEMENT 9.1 - REFLECTION SESSION

The instructor shall:

9.1.1 Give the participants final feedback on the formal participant performance assessment and inform them whether they have passed (failed participants must be informed individually prior to the reflection session)
9.1.2 Help the participants 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 their way of work. This can be achieved by an individual reflection session, question session and/or class discussion
9.1.3 Re-present the overall aims and objectives of the course for the participants comparison on their learning outcome and meeting of their previously stated expectations of the course
9.1.4 Give an overall feedback and feed forward on the participants learning outcome
9.1.5 Encourage the participants to examine and grow awareness of what specific elements in their own wind turbine type and environment differ from the training scenario environment (to visualize and enhance learning transfer) and to discuss with colleagues the methods and techniques under the local specific conditions identified after course completion

ELEMENT 9.2 - FORMATIVE EVALUATION

The instructor shall:

9.2.1 Respond on relevant elements of any oral feedback from the participants.
Basic Safety Training

**Online Partial** Refresher (BSTR-P)

(Onshore/Offshore)

Annexes

Version 1

April 2020
## Scenario Organisation

<table>
<thead>
<tr>
<th>Description</th>
<th>Violation of Assessment Measures</th>
<th>0-2 passed 3 failed</th>
<th>Instructor Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of personal and group safety at all times</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organises and utilises correct equipment for given scenario</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organises individuals and groups as required</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Scenario Management

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishes and maintains control of the exercise scenario at all times</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully participates in the exercise scenario</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follows instructions when required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates correct and safe Manual Handling in exercise scenario</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Knowledge and Understanding

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies subject knowledge correctly in given scenario</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstrates understanding of subject</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Total Marks

<table>
<thead>
<tr>
<th>0-9 Pass</th>
<th>10-27 Fail</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PASS:</th>
<th>FAIL:</th>
</tr>
</thead>
</table>

### Instructor Name (in CAPITAL letters)

### Instructor Signature

### Training provider
The following pages contain the lists of equipment required for delivering each of the modules contained within this training standard. Any equipment used by the training provider and course participants during the delivery of training under this standard must satisfy or exceed the requirements of the equipment standards for the time being in force in the country where the training is taking place.

Where training takes place in a country where there are no equipment standards for the equipment being used, then the equipment used by the training provider and the course participants during the delivery of training under this standard shall satisfy or exceed the requirements of the European (EN) standards.

Note: All equipment shall be maintained and where appropriate, inspected and tested in accordance with current national or regional standards and / or legislation and manufacturers’ recommendations.
1. BSTR-P FIRST AID PARTIAL REFRESHER

The following equipment is required by the **instructor** to support the BSTR-P First aid training:

1) Torso anatomy dummy 
2) Airway model 
3) Resuscitation dummies - adult 
4) First Aid equipment 
5) First Aid bag 
6) AED Trainers 
7) Blankets 

**Note:** Any equipment used during this GWO training module shall meet or exceed the minimum requirements of the national standards in the country where the training is taking place.

When working in a country where there is no applicable national standard then the equipment shall meet or exceed the minimum requirements of the European standards.

The following equipment is required by the **course participants:**

1) First aid equipment, as a minimum:
   a. Bandages 
   b. Triangular bandage 
   c. Towel / blanket 
2) Other items that are found in a typical first aid kit
2. BSTR-P MANUAL HANDLING PARTIAL REFRESHER

The following equipment is required by the instructor to support the BSTR-P Manual handling training:

1) A Lumbar Vertebrae model for educational purposes
2) A model of a shoulder for educational purposes
3) A load that weighs no more than 30 Kg (66.14 lbs) and is unwieldy:
   a. difficult to grasp,
   b. difficult to grip,
   c. with contents likely to move or shift (e.g. a rescue dummy)
4) Other lifting props for Manual Handling:
   a. weighing maximum 15 Kg (33.07 lbs)
5) Personal Protective equipment.

Note: Any equipment used during this GWO training module shall meet or exceed the minimum requirements of the national standards in the country where the training is taking place.

When working in a country where there is no applicable national standard then the equipment shall meet or exceed the minimum requirements of the European standards.

The following equipment is required by the course participants:

1) A load that weighs no more than 5 Kg (11.02 lbs)
2) A table
3. BSTR-P FIRE AWARENESS PARTIAL REFRESHER

The following equipment is required by the instructor to support the BSTR-P Fire awareness module:

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

Note: Any equipment used during this GWO training module shall meet or exceed the minimum requirements of the national standards in the country where the training is taking place.

When working in a country where there is no applicable national standard then the equipment shall meet or exceed the minimum requirements of the European standards.

The following equipment is required by the course participants:

1) There are no specific equipment requirements for the participants
4. BSTR-P WORKING AT HEIGHT PARTIAL REFRESHER

The following equipment is required by the **instructor** to support the BSTR-P Working at height module.

The training provider must select the most relevant products according to the geographic location of the target audience.

1) Full Body Harness
2) Work restraint lanyards
3) Fixed length fall arrest lanyards with an energy absorber
4) Helmets
5) Vertical fall arrest system with the following sliders / gliders:
   a. Cable guide twist type attachment
   b. Cable guide Slot type attachment
   c. Cable guide Clamp Type attachment
   d. Rail type attachment
6) Self-Retractable Lifeline (SRL)
7) Slings*
8) Karabiner with mandatory automatic closing and locking system
9) Evacuation and rescue devices
10) Rope clamp for rescue (enabling lifting/safe disconnection of a loaded rope type fall protection lanyard)
11) Vertical aluminium ladders
12) Anchor points**

**Note:** Any equipment used during this GWO training module shall meet or exceed the minimum requirements of the national standards listed in table A2-4.

When working in a country where there is no applicable national standard then the equipment shall meet or exceed the minimum requirements of the European standards.

The following equipment is required by the **course participant**:

1) Full body harness
2) Work restraint lanyard
3) Fixed length fall arrest lanyard(s) with an energy absorber
4) Slider or glider

*
Note: The European Standard for slings specifies safety requirements and test methods for slings used for mountaineering (slings are used as anchor points and since there are no industrial standard for slings, they must also comply with the requirements in EN795 type B, anchor devices)

** Note: The height of the anchor points shall ensure that in the event of a fall there will be enough space below the anchor point to allow the shock absorber in a fixed length fall arrest lanyard to fully deploy whilst preventing the person who is falling from coming into contact with the ground or structure below the anchor point.

The GWO recommends an anchor point height of 6.75 m (22.15’) for the evacuation exercises.

The recommended height is based upon the following formula,

\[ RD = LL + DD + HH + C, \]

Where,

- \( RD \) = Required Fall Distance Clearance (minimum anchor point height)
- \( LL \) = Length of Lanyard
- \( DD \) = Deceleration Distance (fall distance)
- \( HH \) = Height of Suspended Worker
- \( C \) = Safety Factor

The value for \( HH \) is the length of the suspended worker after a fall and includes factors like the height of the person and harness stretch, to account for these variables this is set to 2.00 m.

Using the value for \( HH \) (2.00 m), the maximum allowed values for \( LL \) (2.00 m) & \( DD \) (1.75 m), and the minimum allowed value for \( C \) (1.00 m), we get,

\[ RD = LL + DD + HH + C \]

and,

\[ RD = 2.00 \text{ m} + 1.75 \text{ m} + 2.00 \text{ m} + 1.00 \text{ m}, \]

therefore,

\[ RD = 6.75 \text{ m}. \]

Therefore, the GWO recommends that the anchor points used during the evacuation exercises are placed a minimum of 6.75 m (22.15’) above the ground or any structure which a person may come into contact with, in the event of a fall.
<table>
<thead>
<tr>
<th>Equipment</th>
<th>Europe</th>
<th>North America</th>
<th>China</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Body Harness</strong></td>
<td>EN 361 Or EN 813</td>
<td>ANSI Z359.3/11 OSHA 1926.28</td>
<td>GB 6095/6096</td>
<td>BS EN 361 Or EN 813</td>
</tr>
<tr>
<td><strong>Work Restraint Lanyards</strong></td>
<td>EN 358</td>
<td>ANSI Z359.1-2 OSHA 1910.28 OSHA 1910.29 1926 Subpart M</td>
<td></td>
<td>BS EN 358</td>
</tr>
<tr>
<td><strong>Fixed length Fall arrest lanyards</strong></td>
<td>EN 355</td>
<td>ANSI Z359.3 OSHA 1910.28 OSHA 1910.29 1926 Subpart M</td>
<td>GB 24543</td>
<td>BS EN 355</td>
</tr>
<tr>
<td><strong>Helmets</strong></td>
<td>EN 397+A1</td>
<td>OSHA 1910.1333 OSHA 1926.28</td>
<td>GB 2811/2812</td>
<td>BS EN 397+A1</td>
</tr>
<tr>
<td><strong>Vertical fall arrest systems</strong></td>
<td>EN 353-1+A1 En 353-2 En 1891 En 892</td>
<td>OSHA 1910.28 OSHA 1910.29 1926 Subpart M</td>
<td>GB 24542/24537</td>
<td>BS EN 353-1+A1 En 353-2 En 1891 En 892</td>
</tr>
<tr>
<td><strong>SRL</strong></td>
<td>EN 360</td>
<td>ANSI Z359.1-2 OSHA 1910.28 OSHA 1910.29 1926 Subpart M</td>
<td>GB 24544</td>
<td>BS EN 360</td>
</tr>
<tr>
<td><strong>Anchor Points</strong></td>
<td>EN 795</td>
<td>GB 30862</td>
<td>BS EN 795</td>
<td></td>
</tr>
<tr>
<td><strong>Slings</strong></td>
<td>EN 566</td>
<td>GB/T 30587 GB/T 20118</td>
<td>BS EN 566</td>
<td></td>
</tr>
<tr>
<td><strong>Karabiners</strong></td>
<td>EN 362</td>
<td>GB/T 23469</td>
<td>BS EN 362</td>
<td></td>
</tr>
<tr>
<td><strong>Evacuation / Rescue devices</strong></td>
<td>EN 341 and EN 1496</td>
<td>GB/T 17889.1 GB/T 17889.2</td>
<td>BS EN 341 and EN 1496</td>
<td></td>
</tr>
<tr>
<td><strong>Vertical aluminium ladders</strong></td>
<td>EN 131-2 and EN 14122-4</td>
<td>GB/T 17889.1 GB/T 17889.2</td>
<td>BS EN 131-2 and EN 14122-4</td>
<td></td>
</tr>
</tbody>
</table>

*Table A2-4 - Country specific equipment standards – BSTR-P Working at height*
5. BSTR-P SEA SURVIVAL PARTIAL REFRESHER

The following equipment is required by the instructor to support the BSTR-P Sea survival module:

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

Note: Any equipment used during this GWO training module shall meet or exceed the minimum requirements of the national standards listed in table A2-5.
When working in a country where there is no applicable national standard then the equipment shall meet or exceed the minimum requirements of the European standards.

The following equipment is required by the course participants:

1) Life jacket
2) Immersion suit
3) Transfer suit
4) Full body harness
5) Twin fall arrest lanyards
<table>
<thead>
<tr>
<th>Equipment</th>
<th>Europe</th>
<th>North America</th>
<th>China</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Life Jackets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rigid</td>
<td></td>
<td></td>
<td></td>
<td>GB/T 32227</td>
</tr>
<tr>
<td>Inflatable</td>
<td></td>
<td></td>
<td>GB/T 9953</td>
<td></td>
</tr>
<tr>
<td><strong>Survival Suits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Helmets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En 397+A1</td>
<td>OSHA 1910.1333</td>
<td>OSHA 1926.28</td>
<td>GB 2811</td>
<td>BS EN 397+A1</td>
</tr>
<tr>
<td>En 341 and En 1496</td>
<td>OSHA 1926.28</td>
<td>OSHA 1926.28</td>
<td>GB 2811</td>
<td>BS EN 397+A1</td>
</tr>
<tr>
<td>En 361 and En 1496</td>
<td>ANSI Z359.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En 341 and En 1496</td>
<td>ANSI Z359.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En 361 and En 1496</td>
<td>BS EN 361</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>ANSI Z359.3</td>
<td>GB 6095</td>
<td>BS EN 361</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>ANSI Z359.11</td>
<td>GB 6095</td>
<td>BS EN 361</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>OSHA 1926.28</td>
<td>GB 6095</td>
<td>BS EN 361</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>OSHA 1926.28</td>
<td>GB 6095</td>
<td>BS EN 361</td>
<td></td>
</tr>
<tr>
<td><strong>Rescue / Evacuation devices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full body Harness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>ANSI Z359.3</td>
<td>GB 24543</td>
<td>BS EN 355</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>ANSI Z359.11</td>
<td>GB 24543</td>
<td>BS EN 355</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>OSHA 1910.28</td>
<td>GB 24543</td>
<td>BS EN 355</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>OSHA 1910.29</td>
<td>GB 24543</td>
<td>BS EN 355</td>
<td></td>
</tr>
<tr>
<td>En 361</td>
<td>1926 Subpart E</td>
<td>GB 24543</td>
<td>BS EN 355</td>
<td></td>
</tr>
<tr>
<td>SRL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>En 360</td>
<td>GB 24544</td>
<td></td>
<td></td>
<td>BS EN 360</td>
</tr>
</tbody>
</table>

*Table A2-5 – Country specific equipment standards – BSTR-P Sea survival*
## ANNEX 3 - GUIDELINE FOR WARM-UP EXERCISES

<table>
<thead>
<tr>
<th>Body part</th>
<th>Exercise</th>
<th>Duration/repetitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td><strong>Head rotations:</strong>&lt;br&gt;• Rotate your head clockwise and anti-clockwise</td>
<td>10 repetitions (five each way)</td>
</tr>
<tr>
<td>Shoulders</td>
<td><strong>Shoulders rotation:</strong>&lt;br&gt;• Place your legs at shoulder-width&lt;br&gt;• Feet straight and toes facing forward&lt;br&gt;• Keep your arms straight at your sides&lt;br&gt;• Perform both shoulders rotation clockwise and anti-clockwise</td>
<td>10 repetitions</td>
</tr>
<tr>
<td>Arms</td>
<td><strong>Arm swings and big arm circles:</strong>&lt;br&gt;• Stand up straight with your feet shoulder-width apart&lt;br&gt;• Rotate your arms forward making big circles and then switch rotating backwards.</td>
<td>10 times clockwise&lt;br&gt;10 times (anti-clockwise)&lt;br&gt;10 times (opposite directions)</td>
</tr>
<tr>
<td>Wrists</td>
<td><strong>Wrist rotation:</strong>&lt;br&gt;• Perform wrists rotation in both directions</td>
<td>10 repetitions for each wrist</td>
</tr>
<tr>
<td>Torso</td>
<td><strong>Torso swings:</strong>&lt;br&gt;• Stand with your legs straight&lt;br&gt;• Place your feet at shoulder-width&lt;br&gt;• Bend your torso forward 90 degrees&lt;br&gt;• Raise both arms straight to the outside</td>
<td>15 repetitions to each side</td>
</tr>
<tr>
<td>Hips</td>
<td><strong>Hip rotation:</strong>&lt;br&gt;• Place your hands on your hips and keep your head straight&lt;br&gt;• Perform extensive hips rotation</td>
<td>10 repetitions (clockwise)&lt;br&gt;10 repetitions anti-clockwise.</td>
</tr>
<tr>
<td>Thighs</td>
<td><strong>Squats:</strong>&lt;br&gt;• Stand with your legs straight&lt;br&gt;• Place your feet at shoulder-width&lt;br&gt;• Push your hips back and slowly bend your knees.&lt;br&gt;• Keep your back straight and your eyes looking forward.&lt;br&gt;• Raise yourself back up when your knees reach a 90-degree angle</td>
<td>15 repetitions</td>
</tr>
<tr>
<td>Ankle</td>
<td><strong>Ankle rotation:</strong>&lt;br&gt;• Place your feet slightly apart&lt;br&gt;• Perform rotation for each foot clockwise and anti-clockwise</td>
<td>10 repetitions (for each foot)</td>
</tr>
<tr>
<td>Back</td>
<td><strong>Back stretch:</strong>&lt;br&gt;• Open legs slightly and place hands on the hips&lt;br&gt;• Turn to the right and left&lt;br&gt;• Incline the back to the right and left&lt;br&gt;• Move Back forward and backward</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 4 - 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?

1. 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:

1) Forearm distance (approx. 30 cm / 1 foot from the spinal column of the lumbar curve)
2) ¾ 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 ¾ arm’s distance is not included since they will most likely be harmful to health, and must be evaluated separately.
2. 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 ⅓ 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 ⅓ 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 ⅓ 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 ⅓ 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.
3. 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:

3) Concerning the **Task**
4) 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 handling, seated or kneeling position, or lack of planning.

5) Concerning the **Individual**
6) 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.

7) Concerning the **Load**
8) Unwieldy, difficult to grasp, difficult to grip, sharp edges, contents likely to move or shift, hot or cold.
9) Concerning the **Environment**
10) 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.
11) Source of reference
12) This annex is based upon the legal requirements and guidelines of the Danish and UK EHS authorities and legislation on manual handling.

**Note:** 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.