



**GLOBAL WIND ORGANISATION
STANDARD**

Basic Safety Training (onshore/offshore)



Foreword

The Global Wind Organisation (GWO) is an association of Wind Turbines owners and manufacturers with the aim of supporting an injury free work environment in the wind industry.

This standard has been developed in response to the demand for recognizable Basic Safety Training (BST) in the industry. The development of this standard has been prepared in co-operation between the members of GWO. The work is based on risk assessments and factual incidents/accidents' statistics within the industry pertaining to the installation, service and maintenance of a wind turbine generator.

The objective of this standard is to develop common industry training and best practice standards on health and safety as a vital and necessary way forward to reduce risks for personnel in the wind industry working on site and to reduce environmental risks across Europe and globally.

This standard describes the requirements for basic safety training in the wind industry recommended by GWO. Where national legislation sets higher requirements for the training, the training provider must incorporate those in the training programme.

The GWO basic safety training does not include any technical safety training such as working with electricity, equipment with stored energy etc. Other additional training may be required due to company or country specific requirements.

GWO recommends a specific company Basic Safety Induction and technical safety training as additional training.

Editorial and Approval

The final editorial and approval of this standard has been made by GWO steering committee.

Control Log

Amendments & Dates	Version	Changes	Approved by & Dates
02.02.2012	0	-	Steering Committee 02.02.2012

Acknowledgement

The members of the Global Wind Organisation recognise that training according to this standard covers the requirements for Basic Safety Training for wind turbine technicians and personnel.

GWO members agree that everyone working on one of their properties (Wind Turbine Generator, sub stations etc.) must complete a Basic Safety Training course relevant for their assignment. All work must be done in teams of at least 2 competent persons.

Exemptions from the above can be made based on internal company rules thereby allowing untrained persons to work with competent personnel or to work on a specific task.

The holder of a GWO certificate is considered competent within basic safety in the wind industry and the members of GWO accept the holder of the certificate as having the required knowledge to stop an unsafe work situation.

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Glossary

GWO	GLOBAL WIND ORGANISATION
BST	BASIC SAFETY TRAINING
WTG	WIND TURBINE GENERATOR



Introduction

The GWO approved Basic Safety Training (BST) provides delegates with a range of important skills and tools including Safety, Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable delegates to work in the offshore environment, an additional Sea Survival module must be completed.

Upon completion of the BST modules, delegates will have an awareness of the hazards encountered when working within the wind industry, and how to control and mitigate those hazards.

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

Target group

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

General description

The GWO basic safety training is divided into five modules.

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

The BST modules are designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements. It is designed to accommodate personnel working both onshore and offshore.

Duration

Modules	Optimum total time
First Aid	16 hours
Manual Handling	4 hours
Fire Awareness	4 hours
Working at Heights	16 hours
Sea Survival	12 hours

Legal requirements

The training provider must identify if national legislations set other requirements in the area of the Basic Safety Training and if so the training provider must incorporate those identified requirements in the training.

The training provider must offer a “country specific add on course” with those national legal requirements for persons that have obtained the GWO training outside the country.

Validation period

The Basic Safety Training modules are valid for the period stated in the table below. Certificates must be renewed before the end of a validation period, which is found by adding the relevant number of months to the issue date of the certificate.

Course/Modules	Certificate Validation (Month)
First Aid	24
Manual Handling	24
Fire Awareness	24
Working at Heights	24
Sea Survival	48

Delegate prerequisites for the BST

All personnel working within this area must be medically fit and capable of performing work under demanding situations.

Delegates must prior to the training have a medical examination done by a physician to determine if they are fit for the job.

The examinations must include the GWO Medical examination recommendation as well as national requirements.

In the event that the content of the accepted national medical certificate does not comply with the GWO recommendation, a signed statement of eligibility from the physician is needed according to the GWO recommendations.

Physical demands

Basic safety training contains physically demanding and potentially stressful elements. All personnel who participates in such training must be medically fit and capable of participating fully. Training providers are required to ensure that prior to participating in practical exercises the delegate possess a valid, current medical certificate.

This piece of information must be given to the delegates as part of the pre-course joining instructions.

If there is any doubt regarding the medical fitness of any delegate, the training provider must stop the training of the delegate and seek the advice of a physician.

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

Aims and objectives

The aims of the basic safety training are to enable the delegates to take care of themselves and others working in the industry by having the knowledge and skills of working at heights, manual handling, fire awareness, sea transfer and survival and in case of an emergency to be able to evacuate, rescue and provide first aid to casualties.

Resources for the Basic Safety Training

The training provider must ensure that staff; facilities and equipment are in place to support the training of the delegates.

Staff

The staff involved must have the appropriate qualifications and experience to ensure that all training and supporting activities are carried out in accordance with current legislation.

Training staff must be:

- (a) Trained in instructional/lecture techniques and/or have documented instructional / teaching experience.
- (b) Included in an on-going training programme, which includes visits to onshore and offshore WTG, to enable them to maintain and update skills

A person with first aid qualifications must be present during all practical training.

All staff must have the appropriate competencies to conduct/assist the elements of training they have been assigned to.

Facilities

The full range of the facilities must be available during the training. The following facilities criteria must be adhered to.

Administration arrangements appropriate for the enrolment and certification of delegates and all aspects of the delivery of training must be in accordance with this standard.

Theory training area(s) must be designed to enable each delegate to see, hear and participate fully in the subject matter being taught.

Practical training areas must be designed to enable each delegate to individually, or as part of a team, see, hear and practice.

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

Risk assessments must be conducted and documented for all training facilities.

The training provider must hold the required permits to operate the facilities.

Equipment

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

The equipment must be maintained, inspected and tested in accordance with current national legislation and manufacturer's recommendations.

Risk assessments must be conducted and documented for all training equipment.

The training provider must hold the required permits to operate the equipment

Administration and Certification

Delegate Performance Assessment

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

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

Certification

Training providers are responsible for issuing a certificate directly to the delegate upon completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed according to the learning outcomes and must contain the following:

- (a) Training Provider's name.
- (b) Full GWO course title stating that it is GWO approved.
- (c) Delegate's name and date of birth.
- (d) Type of equipment used in the course and maximum training height (BST Working at Height only)
- (e) Course dates.
- (f) Expiry date.
- (g) Training Provider's signature.

Note: (d) Applicable to BST Module Working at Heights manufacturers and different types of fall arrest systems or rescue equipment. The course is not designed to test the delegate's capability and aptitude for working in height. However, a climb to a higher height than the



minimum height stated in this standard can be an indicator of the delegates' capability and aptitude for working at height. The maximum height used during the training must be stated on the certificate.

Records

The training provider must keep a register of delegates who have completed the GWO training.

On request from GWO or any of the members of GWO, the training provider must be able to verify the training and competence records of any specific personnel by name.

BST Modules

The requirements for each of the modules are outlined below.

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**GLOBAL WIND ORGANISATION
STANDARD**

Basic Safety Training (onshore/offshore)

FIRST AID



Foreword

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This standard describes the requirements for basic safety training in the wind industry recommended by GWO. Where national legislation sets higher requirements for the training, the training provider must incorporate those in the training programme.

The GWO basic safety training does not include any technical safety training such as working with electricity, equipment with stored energy etc. Other additional training may be required due to company or country specific requirements.

GWO recommends a specific company Basic Safety Induction and technical safety training as additional training.

Acknowledgement

The members of the Global Wind Organisation (GWO) recognise that training according to this standard covers the requirements for Basic Safety Training for wind turbine technicians and personnel.

GWO members agree that everyone working on one of their properties (Wind Turbine Generator, sub stations etc.) must complete a Basic Safety Training course relevant for their assignment. All work must be done in teams of at a least 2 competent persons.

Exemptions from the above can be made based on internal company rules thereby allowing untrained persons to work with competent personnel or to work on a specific task.

The holder of a GWO certificate is considered competent within basic safety in the wind industry and the members of GWO accept the holder of the certificate as having the required knowledge to stop an unsafe work situation.

Glossary

AED	Automatic External Defibrillator
AHA	American Heart Association
BST	Basic Safety Training
CPR	Cardio Pulmonary Resuscitation
CO2	Carbon Dioxide
ERC	European Resuscitation Council
GWO	Global Wind Organisation
ISO	International Organisation for Standardisation
WTG	Wind Turbine Generator

Introduction

The GWO approved Basic Safety Training provides delegates with a range of important skills and tools including Safety, Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable delegates to work in the offshore environment, an additional Sea Survival module must be completed.

Upon completion of the BST modules, delegates will have an awareness of the hazards encountered when working within the wind industry, and how to control and mitigate those hazards.

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

Target group

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

Section 1 - The Basic Safety Training (BST)

1.1. Duration of the BST Module First Aid.

The optimum total time for completing this module is estimated to be **16 hours** incl. meals and breaks.

The training must be focused on the access and egress conditions of a wind turbine environment. The practical skills must be trained and demonstrated in a restricted area of movement and all elements in the course must be done by demonstration where ever possible.

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



Make sure that delegates with prior experience share their experiences in a way that is constructive for the entire class.

The course will still be taught as per lesson plan whether the delegate has prior experience or not.

1.2. Target group for the Module First Aid

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

1.3. Delegate prerequisites for the Module First Aid

An medical certificate that is accepted within each region respectively is a prerequisite for the delegate's participation in the module.

1.4. Physical and stressful demands of the Module First Aid

Basic safety training contains physically demanding and potentially stressful elements. All personnel who participate in such training must be medically fit and capable of participating fully. Training providers are required to ensure that prior to participating in practical exercises the delegate possess a valid, current medical certificate.

This piece of information must be given to delegates as part of the pre-course joining instructions. If there is any doubt regarding the medical fitness of any delegate the training provider must stop the training of the delegate and seek the advice of a physician.

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

1.5. Aims and objectives of the module First Aid

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

The objectives of the BST First Aid module are to ensure that:

- a) The delegates are able to demonstrate understanding of the importance to carry out First Aid in a safe and sound manner in accordance with the legislative requirements of their geographic location and according to ERC and AHA guidelines



- b) The delegates are able to identify and explain normal function, normal signs, functions and symptoms of serious and minor injuries and illness related to the human body
- c) The delegates are able to demonstrate understanding and correct order of management in an emergency situation in a WTG environment
- d) The delegates are able to demonstrate correct use of lifesaving first aid using the primary survey A-B-C
- e) The delegates are able to demonstrate correct use of an automatic external defibrillator (AED)
- f) The delegates are able to demonstrate correct use of ordinary First Aid, the secondary survey
- g) The delegates are able to demonstrate correct use of first aid equipment in a first aid scenario

1.6. Learning outcomes of the BST module First Aid

The learning outcomes specified for the First Aid module are:

Lesson 1 Introduction

15 min

The aim of the lesson is to give the delegates the needed awareness of the main aspects of the course and the facilities involved in order to ensure that all delegates are aware of what to expect and what is expected of them in the course.

To successfully complete this module, delegates must be aware of:

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

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

Lesson 2 Legislation/Risks/Hazards

25 min.

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



To successfully complete this module, delegates must demonstrate:

- (1) Understanding of global legislation relevant to First Aid
- (2) Understanding of regional legislation relevant to First Aid
- (3) Understanding of risks and hazards relating to First Aid in a WTG environment
- (4) Understanding different First Aid guidelines – ERC and AHC

Lesson 3 Anatomy

50 min

The aim of the lesson is to give the delegates knowledge and skills regarding the human body. So the delegates are able to identify and explain normal function, normal signs and symptoms, functions and symptoms of major and minor injuries and illness related to the human body.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Understanding of life conditions for the human body
- (2) Knowledge of the structure, functions and signs of the human body
- (3) Knowledge and skills for detecting abnormal signs, symptoms and functions of serious and minor injuries
- (4) Knowledge and skills for detecting abnormal signs and symptoms of serious and minor illness related to the human body
- (5) Understanding of anatomy and first aid in emergency situations
- (6) Understanding of personal hygiene

Lesson 4 Managing an incident

50 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge and skills to manage an incident
- (2) Knowledge and skills for safety awareness in an emergency situation both primary and secondary situations
- (3) Knowledge and skills for primary and secondary First aid
- (4) Understanding of support from Emergency rescue teams in a WTG environment

Lesson 5 Lifesaving first aid primary survey A – B - C

200 min.

The aim of the lesson is to give the delegates the knowledge and skills to follow a methodical sequence to establish techniques so each life-threatening condition can be identified in a priority order and dealt with on a “find and treat” basis in an emergency situation.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Immediate first aid actions using primary survey A-B-C
- (2) Correct first aid to an unresponsive and breathing casualty
- (3) Correct first aid to an unresponsive and not breathing casualty
- (4) Knowledge and skills regarding CPR
- (5) Correct first aid for obstruction of airways
- (6) Correct first aid for bleeding – externally and internally
- (7) Correct first aid for shock

Lesson 6 AED

100 min.

The aim of the lesson is to give the delegates the knowledge and skills to be able to use an automatic external defibrillator (AED)

To successfully complete this module, delegates must be able to demonstrate:

- (1) Understanding of the technical specifications of an AED
- (2) Knowledge and skills for AED safety procedures
- (3) Correct use of an AED

Lesson 7 Ordinary First Aid

50 min.

The aim of the lesson is to give the delegates the knowledge and skills to be able to assess, assist and provide the necessary first aid in minor incidents.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge and skills for managing minor incidents - approach and assessments
- (2) Correct secondary survey
- (3) Knowledge and skills regarding psychological first aid

Lesson 8 Scenario based training

250 min.

The aim of the lesson is to give the delegates the knowledge and skills to be able to assess, assist and provide the correct first aid in an incident.

To successfully complete this module, delegates must through different scenarios be able to demonstrate:

- (1) Managing incidents - approach and assessments
- (2) Correctly assess, assist and provide the necessary first aid in an incident
- (3) Correct use of first aid equipment

Lesson 9 Evaluation

15 min.

The aim of the lesson is to sum up the module and give the delegates the opportunity to make an open minded review of the training and the instructor.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Active participation in the evaluation

1.7. Delegate Performance Assessment

Delegates will be assessed according to the learning outcomes by means of direct observation and oral questions as appropriate.

Formal evaluation of knowledge:

According to control measures in **Section - 3.5**

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

1.8. Timetable, BST Module First Aid

The order in which the elements of the training module are delivered may vary.

Lesson		Element		Approximate Duration
1	Introduction	1.1	Safety instructions and emergency procedures	
		1.2	Facilities	
		1.3	Introduction	
		1.4	Aims and main learning objectives	
		1.5	On-going assessment according to GWO control measures	
		1.6	Motivation	
2	Legislation	2.1	Global legislation	
		2.2	Regional legislation	
		2.3	First Aid guidelines ERC - AHA	
		2.4	Risks and hazards	
3	Anatomy	3.1	Life conditions for the human body	
		3.2	Structure, functions and signs - the human body	
		3.3	Serious and minor injuries - signs, symptoms and function	
		3.4	Serious and minor illness – signs symptoms and function	
		3.5	Use of anatomy and first aid in emergency situations	
		3.6	Understanding of personal hygiene	
4	Management of an incident	4.1	Management of an incident	
		4.2	Safety awareness in an emergency situation	

		4.3	Primary and secondary incidents Emergency rescue teams	
			TOTAL	50 min
5	Lifesaving first aid ABC Primary survey	5.1 5.2 5.3 5.4 5.5 5.6 5.7	Primary survey A-B-C Unresponsive Unresponsive and not breathing CPR Obstruction of airways Bleeding – externally and internally Shock	
			TOTAL	200 min
6	AED	6.1 6.2 6.3	Theory and technical specification AED safety procedures Correct use of an AED	
			TOTAL	100 min
7	Ordinary first aid	7.1 7.2 7.3	Managing minor incidents Minor to serious incidents Psychological first aid	
			TOTAL	60 min
8	Scenario based training	8.1 8.2	Primary scenarios/exercises Secondary scenarios/exercises	
			TOTAL	275 min
9	Evaluation	9.1 9.2 9.3	Summary Evaluation Certificates	
			TOTAL	15 min
GRAND TOTAL			790 min	

1.9. Elements, BST Module First Aid

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training staff is to **explain**:

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

ELEMENT 1.2 Facilities

Training staff is to **explain**:

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

ELEMENT 1.3 Introduction

Training staff is to **give**:

- 1.3.1 A short introduction of themselves including background as instructor

Delegates are to **give**:

- 1.3.2 A short introduction of themselves including job function and expected primary geographical job location

Training staff is to **explain**:

- 1.3.3 The programme of the module including time of breaks and meals

ELEMENT 1.4 Scope and main objective

Training staff is to **explain**:

- 1.4.1 Scope and main objectives of the module

ELEMENT 1.5 On-going assessments

Training staff is to **explain**:

- 1.5.1 The reasons for the on-going assessment
- 1.5.2 GWO control measures and its use

ELEMENT 1.6 Motivation

Training staff is to **explain**:



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

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training staff is to **explain**:

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

ELEMENT 2.2 National legislation

Training staff is to **explain**:

- 2.2.1 Applicable legislation.
- 2.2.2 Legislative requirements.
- 2.2.3 Legal responsibilities.
- 2.2.4 Role of first aid in the industry.

ELEMENT 2.3 First Aid Guidelines

Training staff is to **explain**:

- 2.3.1. Different guidelines from ERC and AHA

ELEMENT 2.4 Risk and Hazards

Training staff is to **lead the discussion on**:

- 2.4.1. Risks and hazards involved in an incident relevant for job functions within the wind industry
 - (a) Onshore
 - (b) Offshore
 - (c) Group discussions

Lesson 3 Anatomy

ELEMENT 3.1 Life conditions for the human body



Training staff is to **explain**:

- 3.1.1 Normal life conditions for the human body
 - (a) Human cells and life conditions
 - (b) Cells and O₂ oxygen
 - (c) Cells and CO₂ toxin
 - (d) Vital organs and their needs

ELEMENT 3.2 Structure, functions and signals - the human body

Training staff is to **explain and demonstrate**:

- 3.2.1 Vital systems of the human body
 - (a) Nervous system
 - (b) Respiratory system
 - (c) Circulatory system
 - (d) Other systems

- 3.2.2 Nerve system
 - (a) Anatomy of the nervous system
 - (b) Structure, functions and normal signals
 - (c) Threats against the nervous system

- 3.2.3 Respiratory system
 - (a) Anatomy of the respiratory system

 - (b) Structure, functions and normal signals

 - (c) Threats against the respiratory system

- 3.2.4 Circulatory system
 - (a) Anatomy of the circulatory system

 - (b) Structure, functions and normal signals

 - (c) Threats against the circulatory system

- 3.2.5 Other systems and vital organs in the human body
 - (a) Anatomy of the vital organs

 - (b) Structure and functions

- (c) Threats against the vital organs

ELEMENT 3.3 Serious and minor injuries - signals, symptoms and function

Training staff is to **explain and demonstrate**:

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

- 3.3.2 Minor injuries
 - (a) Nervous system
 - (b) Respiratory system
 - (c) Circulatory system
 - (d) Other systems

ELEMENT 3.4 Serious and minor illness – signals, symptoms and function

Training staff is to **explain and demonstrate**:

- 3.4.1 Serious illness
 - (a) Nervous system
 - (b) Respiratory system
 - (c) Circulatory system
 - (d) Other systems

- 3.4.2 Minor illness
 - (a) Nervous system
 - (b) Respiratory system
 - (c) Circulatory system
 - (d) Other systems

ELEMENT 3.5 Use of Anatomy and first aid in emergency situations



Training staff is to **explain and demonstrate**:

- 3.5.1 Assessments of a casualty
 - (a) From structure, function and symptoms to correct first aid treatment of a casualty
 - (b) Airway – Breathing - Circulation

ELEMENT 3.6 Understanding of personal hygiene

Training staff is to **explain**:

- 3.6.1 Personal hygiene
 - (a) As a first aider
 - (b) Protection and use of barriers in an emergency situation

Lesson 4 Management of an incident

ELEMENT 4.1 Management of an incident

Training staff is to **explain and demonstrate**:

- 4.1.1 Managing an incident
 - (a) How to follow an efficient and correct first aid structure
 - (b) Analysis and management of an incident
 - (c) Different emergency situations in the wind industry
 - (d) Call for help – challenges onshore
 - (e) Call for help – challenges offshore

Delegates are to **explain and demonstrate**:

- 4.1.2 Managing an incident
 - (a) How to follow an efficient and correct first aid structure
 - (b) Analysis and management of an incident
 - (c) Different emergency situations in the wind industry
 - (d) Call for help – challenges onshore
 - (e) Call for help – challenges offshore

ELEMENT 4.2 Safety awareness in an emergency situation

Training staff is to **explain and demonstrate**:

- 4.2.1 Safety in an emergency situation



- (a) Appropriate safety behaviour and awareness of hazards as a first aider in a WTG environment
- (b) Safety for all persons involved in an incident
- (c) Moving or not moving a casualty

Delegates are to **explain and demonstrate**:

4.2.2 Moving a casualty

- (a) Moving a casualty with two first aiders
- (b) Moving a casualty alone

ELEMENT 4.3 Primary and secondary incidents

Training staff is to **explain and demonstrate**:

4.3.1 Primary and secondary incidents

- (a) Primary incidents using a correct first aid structure
- (b) Secondary incidents using a correct first aid structure
- (c) Assessments

ELEMENT 4.4 Emergency rescue teams

Training staff is to **explain**:

4.4.1 Emergency rescue teams

- (a) Functions of emergency rescue teams
- (b) Co-operation with emergency rescue teams
- (c) Challenges for emergency rescue team on site

Lesson 5 Lifesaving first aid A-B-C

ELEMENT 5.1 Primary survey A-B-C

Delegates are to **explain and demonstrate**:

5.1.1 How to use primary survey in an incident

- (a) Airway
- (b) Breathing
- (c) Circulation

ELEMENT 5.2 Unresponsive

Training staff is to **explain and demonstrate**:

5.2.1 First aid to an unresponsive casualty

- (a) Reasons for being unresponsive
- (b) Threats
- (c) Primary survey ABC
- (d) Recovery position alone
- (e) Recovery position two first aiders
- (f) First aid equipment

Delegates are to **practice and demonstrate**:

5.2.2 First aid to an unresponsive casualty

- (a) Threats
- (b) Primary survey - ABC
- (c) Recovery position alone
- (d) Recovery position two first aiders
- (e) Use of first aid equipment

ELEMENT 5.3 Unresponsive not breathing

Training staff is to **explain and demonstrate**:

5.3.1 Unresponsive and not breathing

- (a) Reasons for being unresponsive and not breathing
- (b) Threats
- (c) Primary survey - ABC
- (d) Performing CPR on adults alone
- (e) Performing CPR on adults – two first aiders
- (f) Performing CPR on children
- (g) Use of first aid equipment

ELEMENT 5.4 CPR

Delegates are to **practice and demonstrate**:

5.4.1 Unresponsive and not breathing

- (a) Primary survey ABC
- (b) Performing CPR on adults
- (c) Performing CPR on children



- (d) Use of first equipment

ELEMENT 5.5 Obstruction of airways

Training staff is to **explain and demonstrate:**

5.5.1 Obstruction of airways

- (a) Reasons for obstruction of airways
- (b) Threats
- (c) Primary survey - ABC
- (d) Adults and children

Delegates are to **practice and demonstrate:**

5.5.2 First aid in the case of obstruction of airways

- (a) Primary survey ABC
- (b) Adults
- (c) Children

ELEMENT 5.6 Bleeding internally and externally

Training staff is to **explain and demonstrate:**

5.6.1 Bleeding externally

- (a) Reasons for bleeding externally
- (b) Threats
- (c) First aid primary survey - ABC
- (d) Use of first aid equipment
- (e) Use of other equipment

Delegates are to **practice and demonstrate:**

5.6.2 First aid when a casualty is bleeding externally

- (a) First aid primary survey - ABC
- (b) Use of first aid equipment
- (c) Use of other equipment

Training staff is to **explain and demonstrate:**

5.6.3 Bleeding internally

- (a) Reasons for bleeding internally

- (b) Threats
- (c) First aid primary survey - ABC
- (d) Use of first aid equipment

Delegates are to **practice and demonstrate**:

5.6.4 First aid when a casualty is bleeding internally

- (a) First aid primary survey - ABC
- (b) Use of first aid equipment

ELEMENT 5.7 Shock

Training staff is to **explain and demonstrate**:

5.7.1 Shock

- (a) Reasons for shock
- (b) Types of shock
- (c) Threats
- (d) First aid primary survey ABC
- (e) Use of first aid equipment
- (f) Physiological first aid

Delegates are to **practice and demonstrate**:

5.7.2 First aid to Shock

- (a) First aid primary survey ABC
- (b) Use of first aid equipment
- (c) Physiological first aid

Lesson 6 AED

ELEMENT 6.1 Technical specifications of an AED

Training staff is to **explain and demonstrate**:

6.1.1 Theory and technical specification of an AED

ELEMENT 6.2 AED safety procedures

Training staff is to **explain and demonstrate**:

6.2.1 AED safety procedures

ELEMENT 6.3 Correct use of an AED

Training staff is to **explain and demonstrate**:

6.3.1 Correct use of an AED

- (a) First aider alone
- (b) Two first aiders

Delegates are to **practice and demonstrate**:

6.3.2 Correct use of an AED

- (a) First aider alone
- (b) Two first aiders

Lesson 7 Ordinary first aid

ELEMENT 7.1 First aid minor incidents

Training staff is to **explain and demonstrate**:

7.1.1 Minor incidents

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

ELEMENT 7.2 Minor to serious incidents

Training staff is to **explain**:

7.2.1 Minor to serious incidents

- (a) Minor incident escalating to a serious incident
- (b) In a WTG environment

ELEMENT 7.3 Psychological first aid

Training staff is to **explain**:

- 7.3.1 Psychological first aid
 - (a) Normal reactions to an unusual situation
 - (b) To a casualty
 - (c) To the surroundings and next of kin
 - (d) Reactions after acting as a first aider

Lesson 8 Scenario based training

ELEMENT 8.1 Practice in first aid techniques

Training staff is to **explain**:

- 8.1.1 Safety procedures in the training area

Delegates are to **practice and demonstrate**:

- 8.1.2 Safe lifesaving first aid techniques through relevant scenarios according to control measures form (see **Notes Lesson 8**)

Formal assessment of knowledge (see Section 1.7)

- 8.1.3 First aid scenarios
 - (a) Managing an incident
 - (b) Dropped object - serious head injury, unresponsive, breathing
 - (c) Fall from heights – external bleeding, unresponsive, breathing
 - (d) Serious internal bleeding
 - (e) Serious external bleeding
 - (f) Unresponsive with normal breathing
 - (g) Unresponsive not breathing
 - (h) CPR
 - (i) CPR using an AED
 - (j) Epileptic seizure
 - (k) Diabetic – type one
 - (l) Asthma
 - (m) Heat stroke
 - (n) Serious burn
 - (o) Hypothermia
 - (p) Hyperthermia
 - (q) Suspension trauma
 - (r) Crush injury
 - (s) Eye injury

- (t) Amputation
- (u) Minor incident escalating to a serious incident

Notes Lesson 8

- (1) *It would be for the best if each delegate takes part in relevant mock scenarios based on the WTG environment using elements from lessons 3, 4, 5, 6, 7.*
- (2) *In all scenarios first aid equipment has to be available*

Lesson 9 Evaluation

ELEMENT 9.1 Summary

Training staff is to:

- 9.1.1 Sum up the module and give the delegates final feedback

ELEMENT 9.2 Evaluation

Delegates are to:

- 9.2.1 Make a written evaluation

Training staff is to:

- 9.2.2 Give necessary feedback on the written evaluations

ELEMENT 9.3 Certificates

Training staff is to:

- 9.3.1 Hand out certificates and ensure that all delegates are registered with the correct personal information on the certificate.

Section 2 - Resources for the Basic Safety Training

2.1. Trainer/Delegate Ratio

(1) The ratio shown for theory sessions indicates the maximum number of delegates attending the course.

(2) Other ratios indicate the maximum number of delegates to be supervised by an instructor during each activity.

Unit	Session	Ratio
Basic First Aid	Theory	1:12
	Practical	2:12

2.2. Facilities

It is important to ensure that the full range of facilities is made available to the delegates in order to ensure that they get the most out of their training. The following facilities criteria must be adhered to.

Administration arrangements appropriate for the enrolment and certification of delegates and all aspects of the delivery of training must be in accordance with this standard.

Theory training area(s) must be designed to enable each delegate to see, hear and participate fully in the subject matter being taught.

Practical training areas must be designed to enable each delegate to individually, or as part of a team, see, hear and practice in a WTG environment.

Note: All facilities must be maintained and where appropriate, inspected and tested in accordance with current national legislation and manufacturers recommendations.

Risk assessments must be conducted and documented for all training facilities.

The training provider must hold the required permits to operate the facilities.

2.3. Equipment

The following equipment is required to meet the needs of the training BST Module First aid

- (a) Torso anatomy dummy



- (b) Airway model
- (c) Resuscitation dummies – adult and child
- (d) First aid equipment
- (e) First aid bag
- (f) Make-up kit for first aid scenarios
- (g) AED trainers
- (h) Blankets

In order to comply with national legislation and standards, the equipment supplied and used by staff and delegates must follow the appropriate guidelines i. e.:

Europe- EN

UK - BS

USA - ANSI

Canada - CSA

Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

Section 3 - Administration and Certification

3.1 Delegate Performance Assessment

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

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

3.2 Validation

The maximum interval between successful completions of BST Module First Aid is **24 months**.

3.3 Certification

Training providers are responsible for issuing a certificate directly to the delegate upon completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed according to the learning outcomes and must contain the following:

- (a) Training Provider's name.
- (b) Full GWO course title stating that it is GWO approved.



- (c) Delegate's name and date of birth.
- (d) Course dates.
- (e) Expiry date.
- (f) Training Provider's signature.

3.4 Records

The training provider must keep a register of the delegates who have completed the BST Module First Aid.

On request from GWO or any of the members of GWO, the training provider must be able to verify the training and competence records of any specific delegate by name and date of birth.

3.5 Measures

The trainer keeps the control measures forms until the completion/evaluation of the module

If a delegate fails to meet the demands, they must attend a new BST Module First Aid.

3.6 Control measures

Find Control Measures form on next page.

Control measures

Name: _____

Date of birth (dd-mm-yyyy): _____

Course: BST Module First Aid

Date: _____

Training provider: _____

Control measures	Non-conformity of control measures			0-2 passed/ 3 failed	Instructor Remarks
Paying attention					
Following directions					
Participation					
Recognise the need for the appropriate manual handling techniques					
Demonstrate correct and safe manual handling in course exercises					
Time: (full hours and exercise time)					
Total remarks (0-9 passed class) (10-18 failed class)					

Instructor: _____

Pass

Fail

The Control Measures form is an evaluation tool for the instructors to measure the number of non-conformity in regard to safety, competency, or course involvement. It can be used as a progressive evaluation tool to discuss the performance of a delegate in guiding them to success and it also serves as supporting documentation in the event that a delegate fails the module.





**GLOBAL WIND ORGANISATION
STANDARD**

Basic Safety Training (onshore/offshore)

MANUAL HANDLING



Foreword

The Global Wind Organisation (GWO) is an association of Wind Turbines owners and manufacturers with the aim of supporting an injury free work environment in the wind industry.

This standard has been developed in response to the demand for recognizable Basic Safety Training (BST) in the industry. The development of this standard has been prepared in co-operation between the members of GWO. The work is based on risk assessments and factual incidents/accidents' statistics within the industry pertaining to the installation, service and maintenance of a wind turbine generator.

The objective of this standard is to develop common industry training and best practice standards on health and safety as a vital and necessary way forward to reduce risks for personnel in the wind industry working on site and to reduce environmental risks across Europe.

This standard describes the requirements for basic safety training in the wind industry recommended by GWO. Where national legislation sets higher requirements for the training, the training provider must incorporate those in the training programme.

The GWO basic safety training does not include any technical safety training such as working with electricity, equipment with stored energy etc. Other additional training may be required due to company or country specific requirements.

GWO recommends a specific company Basic Safety Induction and technical safety training as additional training.

Acknowledgement

The members of the Global Wind Organisation recognise that training according to this standard covers the requirements for Basic Safety Training for wind turbine technicians and personnel.

GWO members agree that everyone working on one of their properties (Wind Turbine Generator, sub stations etc.) must complete a Basic Safety Training course relevant for their assignment. All work must be done in teams of at least 2 competent persons.

Exemptions to the above can be made based on internal company rules thereby allowing untrained persons to work with competent personnel or to work on a specific task.

The holder of a GWO certificate is considered competent within basic safety in the wind industry and the members of GWO accept the holder of the certificate as having the required knowledge to stop an unsafe work situation.

Glossary

BST	Basic Safety Training
GWO	Global Wind Organisation
PPE	Personal Protective Equipment
WTG	Wind Turbine Generator
T.I.L.E	Task Individual Load Environment

INTRODUCTION

The GWO approved Basic Safety Training provides delegates with a range of important skills and tools including Safety, Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable delegates to work in the offshore environment, an additional Sea Survival module must be completed.

Upon completion of the BST modules, delegates will have an awareness of the hazards encountered when working within the wind industry, and how to control and mitigate those hazards.

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

Target group

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

Section 1 - The Basic Safety Training (BST)

1.1. Duration of the BST Module Manual Handling.

The optimum total time for completing this module is estimated to be **4 hours** incl. meals and breaks.

The training must be focused on access and egress conditions of a wind turbine environment. The practical skills must be trained and demonstrated in a restricted area of movement and all elements in the course must be done by demonstration where ever possible.

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

Make sure that delegates with prior experience share their experiences in a way that is constructive for the entire class. The course will still be taught as per lesson plan whether the delegate has prior experience or not.

1.2. Target group for the module Manual Handling

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

1.3. Delegate prerequisites for the module Manual Handling

A medical certificate that is accepted within each region respectively is a prerequisite for the delegate's participation in the module.

1.4. Physical and stressful demands of the module Manual Handling

Basic safety training contains physically demanding and potentially stressful elements. All personnel who participate in such training must be medically fit and capable of participating fully. Training providers are required to ensure that prior to participating in practical exercises the delegate possess a valid, current medical certificate.

This piece of information must be given to the delegates as part of the pre-course joining instructions.

If there is any doubt regarding the medical fitness of any delegate the training provider must stop the training of the delegate and seek the advice of a physician

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

1.5. Aims and objectives of the module Manual Handling

The aims of this module are to give the participants the awareness through theoretical and practical training to encourage positive manual handling behaviour and perform manual handling activities in a safe manner in the wind turbine industry/environment, in accordance with GWO Manual Handling

The objectives of the BST Manual Handling module are to ensure that:

- (a) The delegates are able to demonstrate understanding of the importance of carrying out work duties in a safe and sound manner in accordance with the legislative requirements of their geographic location.

- (b) The delegates are able to identify aspects of their job tasks that could increase a worker's risk of developing muscular / skeletal injuries
- (c) The delegates are able to demonstrate understanding of safe practices for manual handling including the correct handling of equipment
- (d) The delegates are able to identify signs and symptoms of injuries related to poor manual handling techniques and have knowledge of reporting methods
- (e) The delegates are able to demonstrate a problem solving approach to manual handling in a wind turbine environment
- (f) The delegates are able to demonstrate manual handling risk reduction techniques

1.6. Learning outcomes of the BST Module Manual Handling

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

Lesson 1 Introduction

15 min

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

To successfully complete this module, delegates must be aware of:

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

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

Lesson 2 Legislation

10 min.

The aim of the lesson is to give the delegates the needed awareness and relevant legislation and demands in order to ensure the delegates' understanding of the roles, responsibilities and rules that apply to Manual Handling.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of global legislation relevant to manual handling



- (2) Knowledge of national legislation relevant to manual handling

Lesson 3 Risk and hazards

20 min.

The aim of the lesson is to give the delegates the needed knowledge and understanding to avoid injuries associated with the risk and hazards of manual handling in a wind turbine environment.

To successfully complete this module, delegates must be able to:

- (1) Demonstrate knowledge of the work environment in a wind turbine
- (2) Explain the risks associated with manual handling.

Lesson 4 Spinal Anatomy and Posture

30 min

The aim of the lesson is to give the delegates the needed general awareness about spinal anatomy and the importance of neutral posture of spine and shoulder in work related situations.

To successfully complete this module, delegates must be able to demonstrate:

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

Lesson 5 Planning lifts

20 min.

The aim of the lesson is to give the delegates the needed knowledge and skills to make a basic risk assessment and take precautions to eliminate the identified risks.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Understanding of the T.I.L.E Principle

Lesson 6 Risk Control and lifting techniques

25 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of further control measures
- (2) Stretching and warming up the specific muscle groups
- (3) Safe lifting techniques

Lesson 7 Behavioural safety

15 min.

The aim of the lesson is to give the delegates the needed understanding of the importance of staying injury free.

To successfully complete this module, delegates must be able to demonstrate:

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

Lesson 8 Scenario based training

60 min.

The aim of the lesson is to give the delegates the needed skills to be able to demonstrate safe lifting techniques according to control measures.

To successfully complete this module, delegates must be able to demonstrate:

- (1) safe lifting techniques

Lesson 9 Evaluation

15 min.

The aim of the lesson is to sum up the module and give the delegates the opportunity to make an open minded review of the training and the instructor.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Active participation in the evaluation

1.7. Delegate Performance Assessment

Delegates will be assessed according to the learning outcomes by means of direct observation and oral questions as appropriate.

Formal evaluation of knowledge:

According to control measures in **Section - 3.5**



Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

1.8. Timetable, BST Module Manual Handling

The order in which the elements of the training module are delivered may vary.

Lesson		Element		Approximate Duration
1	Introduction	1.1	Safety instructions and emergency procedures	
		1.2	Facilities	
		1.3	Introduction	
		1.4	Aims and main learning objectives	
		1.5	On-going assessment according to GWO control measures	
		1.6	Motivation	
2	Legislation	2.1	Global legislation	
		2.2	National legislation	
		TOTAL		
3	Risks and hazards	3.1	Risk and hazards in a wind turbine environment	
		TOTAL		
4	Spinal anatomy and posture	4.1	Muscular skeletal injuries	
		4.2	Spinal anatomy	
		4.3	Shoulder anatomy	
		4.4	Symptom awareness	
		4.5	Reporting methods	
5	Planning lifts	5.1	T.I.L.E principle	
		TOTAL		
6	Risk control and lifting techniques	6.1	Further control measures	
		6.2	Safe lifting techniques	
		TOTAL		
7	Behavioural safety	7.1	Consequences of incorrect manual handling	
		7.2	Causes of injuries	
		TOTAL		
8	Scenario based training	8.1	Practice in safe lifting technique	
		TOTAL		
9	Evaluation	9.1	Summary	
		9.2	Evaluation	
		9.3	Certificates	
		TOTAL		
GRAND TOTAL		210 min		

1.9. Elements, BST Module Manual Handling

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training staff is to **explain**:

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

ELEMENT 1.2 Facilities

Training staff is to **explain**:

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

ELEMENT 1.3 Introduction

Training staff is to **give**:

- 1.3.1 A short introduction of themselves including their background as instructors

Delegates are to **give**:

- 1.3.2 A short introduction of themselves including job function and expected primary geographical job location

Training staff is to **explain**:

- 1.3.3 The programme of the module including time of breaks and meals

ELEMENT 1.4 Scope and main objective

Training staff is to **explain**:

- 1.4.1 Scope and main objectives of the module

ELEMENT 1.5 On-going assessments

Training staff is to **explain**:

- 1.5.1 The reasons for the on-going assessment
- 1.5.2 GWO control measures and its use

ELEMENT 1.6 Motivation

Training staff is to **explain**:

- 1.6.1 The importance of personal involvement in the course
- 1.6.2 The definition and need for correct manual handling

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training staff is to **explain**:

- 4.1.1. Applicable legislation.
- 4.1.2. Legal responsibilities.

ELEMENT 2.2 National legislation

Training staff is to **explain**:

- 2.2.1. Applicable legislation.
- 2.2.2. Legislative requirements.
- 2.2.3. Legal responsibilities.
- 2.2.4. Role of industry organisations.

Lesson 3 Risk and Hazards

ELEMENT 3.1 Risk and hazards in a wind turbine industry

Training staff is to **lead discussions**:

5.1.1. On the risks and hazards of manual handling relevant to the job functions within the wind turbine industry:

- (a) Awkward positions.
- (b) Forceful exertions.
- (c) Repetitive motions.
- (d) Contact stress.
- (e) Vibration, local and whole body.
- (f) Duration of exposure.
- (g) Frequency of exposure.
- (h) Intensity of exposure.

5.1.2. On how to avoid the risks and hazards and improve the tasks in relation to manual handling

Lesson 4 Spinal anatomy and posture

ELEMENT 4.1 Muscular and Skeletal Injuries

Training staff is to **explain and demonstrate**:

5.1.1 Muscular and Skeletal Injuries related to manual handling, to include:
Back Injuries e.g. prolapsed disc, muscle strains.

ELEMENT 4.2 Spinal anatomy and posture

Training staff is to **explain and demonstrate**:

5.2.1 Spinal anatomy and posture.

ELEMENT 4.3 Shoulder anatomy

Training staff is to **explain and demonstrate**:

5.3.1 Shoulder anatomy and common injuries if working above shoulder height e.g. tendinitis, bursitis.

ELEMENT 4.4 Symptom awareness

Training staff is to **explain**:

5.4.1 Symptom awareness and the importance of early detection and treatment

ELEMENT 4.5 Reporting methods

Training staff is to **explain**:

- 5.5.1 Reporting methods and procedures in case of injuries.
 - (a) National requirements
 - (b) Company specifics

Lesson 5 Planning lifts

ELEMENT 5.1 T.I.L.E principles

Delegates are to **explain**:

- 7.1.1. Basic, quick risk assessment e.g. identification, assess the level of risk, control the risk.
- 7.1.2. The importance of quickly assessing tasks that are on-going / performance-related

Training staff is to **explain**:

- 7.1.3. Planning manual handling correctly; by using the T.I.L.E principle;
 - (a) Task (repetition, duration, location, distance, hazards, stairs, pace).
 - (b) Individual (posture, capability, height, size).
 - (c) Load (weight, handles, size, temperature, texture).
 - (d) Environment (rain, wind, obstacles, floor conditions).

Lesson 6 Risk control and lifting techniques

ELEMENT 6.1 Further control measures

Training staff is to **explain and demonstrate**:



6.1.1. Further control measures to reduce risk of injury; including

- (a) Mechanical handling (e.g. cranes, scissor lifts, trolleys, steps).
- (b) PPE correct fit (e.g. correct sizes, boot laces tied).
- (c) Breaking up loads.
- (d) Protecting pre-existing injuries.
- (e) Adequate lighting.
- (f) Good housekeeping.

ELEMENT 6.2 Safe lifting techniques

Training staff is to **explain and demonstrate**:

6.2.1. Safe lifting techniques; including

- (a) Stretching and warming up the relevant muscle groups.
- (b) Safe lifting technique's from floor.
- (c) Safe lifting technique's from height (e.g. bench, shelving rack).
- (d) Safe lifting techniques using 2 or more persons.

Delegates are to **practice and demonstrate**:

6.2.2. Safe lifting techniques; including

- (a) Stretching and warming up the relevant muscle groups.
- (b) Safe lifting technique's from floor.
- (c) Safe lifting technique's from height (e.g. bench, shelving rack).
- (d) Safe lifting techniques using 2 or more persons.

Lesson 7 Behavioural safety

ELEMENT 7.1 Consequences of incorrect manual handling

Training staff is to **explain**:

7.1.1 Consequences of incorrect manual handling



ELEMENT 7.2 Causes of injuries

Training staff is to **explain**:

- 7.2.1 Causes of injuries. I.e. time vs. effort/conditions/risk, putting job before self, negative habits, previous injuries etc.
- 7.2.2 Highlight the importance of staying injury free

Lesson 8 Scenario based training

ELEMENT 8.1 Practice in safe lifting techniques

Training staff is to **explain**:

- 8.1.1 Safety procedures in the training area.

Delegates are to **practice and demonstrate**:

- 8.1.2 Safe lifting techniques in scenarios relevant to the industry according to the control measures form (see **Notes Lesson 8**)

Formal assessment of knowledge (see Section 1.7)

Notes Lesson 8

- (1) *It would be for the best if each delegate partakes in a mock scenario based on the WTG environment. This is to include:*
 - (a) *Lifting various objects in the correct and proper manner. These can be of different shapes and sizes but must not weigh more than 15kg.*
 - (b) *In teams of 2 to perform a correct lift of a rescue dummy that weighs no more than 30kg*
 - (c) *The scenarios must give the delegates the opportunity to practice some of the further control measures mentioned in **ELEMENT 6.1***

Lesson 9 Evaluation

ELEMENT 9.1 Summary

Training staff is to:



9.1.1 Sum up the module and give the delegates final feedback

ELEMENT 9.2 Evaluation

Delegates are to:

9.2.1 Make a written evaluation

Training staff is to:

9.2.2 Give necessary feedback on the written evaluations

ELEMENT 9.3 Certificates

Training staff is to:

9.3.1 Hand out certificates and ensure that all delegates are registered with the correct personal information on the certificate.

Section 2 - Resources for the Basic Safety Training

2.1. Trainer/Delegate Ratio

(1) The ratio shown for theory sessions indicates the maximum number of delegates attending the course.

(2) Other ratios indicate the maximum number of delegates to be supervised by an instructor during each activity.

Unit	Session	Ratio
BST Manual Handling	Theory	1:12
	Practical	1:12

2.2. Facilities

It is important to ensure that the full range of facilities is made available to ensure that the delegates get the most out of their training. The following facilities criteria must be adhered to.

Administration arrangements appropriate for the enrolment and certification of delegates and all aspects of the delivery of training must be in accordance with this standard.

Theory training area(s) must be designed to enable each delegate to see, hear and participate fully in the subject matter being taught.

Practical training areas must be designed to enable each delegate to individually, or as part of a team, see, hear and practice the following:

- (1) Safe lifting techniques in an area with no obstacles
- (2) Safe lifting techniques in scenarios relevant to the industry

Note: All facilities must be maintained and where appropriate, inspected and tested in accordance with current national legislation and manufacturers recommendations.

Risk assessments must be conducted and documented for all training facilities.

The training provider must hold the required permits to operate the facilities.

2.3. Equipment

The following equipment is required to meet the needs for the BST Manual Handling Module.

- (a) A Lumbar Vertebrae model for educational purposes
- (b) A model of a shoulder for educational purposes
- (c) Rescue dummy weighing 30kg
- (d) Lifting props for manual handling weighing max 15kg
- (e) Personal Protective Equipment (PPE)

In order to comply with national legislation and standards, the equipment supplied and used by staff and delegates must follow the appropriate guidelines i. e.:

Europe- EN

UK - BS

USA - ANSI

Canada - CSA

Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

Section 3 - Administration and Certification

3.1 Delegate Performance Assessment

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

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

3.2 Validation

The maximum interval between successful completions of BST Module Manual Handling is **24 months**.

3.3 Certification

Training providers are responsible for issuing a certificate directly to the delegate after completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed according to the learning outcomes and must contain the following:

- (a) Training Provider's name.



- (b) Full GWO course title stating that it is GWO approved.
- (c) Delegate's name and date of birth.
- (d) Course dates.
- (e) Expiry date.
- (f) Training Provider's signature.

3.4 Records

The training provider must keep a register of the delegates who have completed the BST Module Manuel Handling.

On request from GWO or any of the members of GWO, the training provider must be able to verify the training and competence records of any specific delegate by name and date of birth.

3.5 Measures

The trainer keeps the control measures forms until the completion/evaluation of the course

If a delegate fails to meet the demands, they must attend a new BST Module Manuel Handling.

3.6 Control measures

Find Control measures form on next page.

Control measures

Name: _____

Date of birth (dd-mm-yyyy): _____

Course: BST Module Manual Handling

Date: _____

Training provider: _____

Control measures	Non-conformity of control measures			0-2 passed/ 3 failed	Instructor Remarks
Paying attention					
Following directions					
Participation					
Recognise the need for the appropriate manual handling techniques					
Demonstrate correct and safe manual handling in course exercises					
Time: (full hours and exercise time)					
Total remarks (0-9 passed class) (10-18 failed class)					

Instructor: _____

Pass

Fail

The Control measures form is an evaluation tool for the instructors to measure the number of non-conformity in regard to safety, competency, or course involvement . It can be used as a



progressive evaluation tool to discuss the performance of a delegate in guiding them to success and it also serves as supporting documentation in the event that the delegate fails the module.



**GLOBAL WIND ORGANISATION
STANDARD**

Basic Safety Training (onshore/offshore)

FIRE AWARENESS



Foreword

The Global Wind Organisation (GWO) is an association of Wind Turbines owners and manufacturers with the aim of supporting an injury free work environment in the wind industry.

This standard has been developed in response to the demand for recognizable Basic Safety Training (BST) in the industry. The development of this standard has been prepared in co-operation between the members of GWO. The work is based on risk assessments and factual incidents/accidents' statistics within the industry pertaining to the installation, service and maintenance of a wind turbine generator.

The objective of this standard is to develop common industry training and best practice standards on health and safety as a vital and necessary way forward to reduce risks for personnel in the wind industry working on site and to reduce environmental risks across Europe.

This standard describes the requirements for basic safety training in the wind industry recommended by GWO. Where national legislation sets higher requirements for the training, the training provider must incorporate those in the training programme.

The GWO basic safety training does not include any technical safety training such as working with electricity, equipment with stored energy etc. Other additional training may be required due to company or country specific requirements.

GWO recommends a specific company Basic Safety Induction and technical safety training as additional training.

Acknowledgement

The members of the Global Wind Organisation recognise that training according to this standard covers the requirements for Basic Safety Training for wind turbine technicians and personnel.

GWO members agree that everyone working on one of their properties (Wind Turbine Generator, sub stations etc.) must complete a Basic Safety Training course relevant for their assignment. All work must be done in teams of at least 2 competent persons.

Exemptions from the above can be made based on internal company rules thereby allowing untrained persons to work with competent personnel or to work on a specific task.

The holder of a GWO certificate is considered competent within basic safety in the wind industry and the members of GWO accept the holder of the certificate as having the required knowledge to stop an unsafe work situation.

Glossary

BST	Basic Safety Training
CO2	Carbon Dioxide
GWO	Global Wind Organisation
PPE	Personal Protective Equipment
WTG	Wind Turbine Generator

INTRODUCTION

The GWO approved Basic Safety Training provides delegates with a range of important skills and tools including Safety, Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable delegates to work in the offshore environment, an additional Sea Survival module must be completed.

Upon completion of the BST modules, delegates will have an awareness of the hazards encountered when working within the wind industry, and how to control and mitigate those hazards.

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

Target group

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

Section 1 - The Basic Safety Training (BST)

1.1. Duration of the BST Module Fire Awareness.

The optimum total time for completing this module is estimated to be **4 hours** incl. meals and breaks.

The training must be focused on the access and egress conditions of a wind turbine environment. The practical skills must be trained and demonstrated in a restricted area of movement and all elements in the course must be done by demonstration where ever possible.

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

Make sure that delegates with prior experience share their experiences in way that is constructive for the entire class.



The course will still be taught as per lesson plan whether the delegate has prior experience or not.

1.2. Target group for the Module Fire Awareness

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

1.3. Delegate prerequisites for the Module Fire Awareness

A medical certificate that is accepted within each region respectively is a prerequisite for the delegate's participation in the module.

1.4. Physical and stressful demands of the Module Fire Awareness

Basic safety training contains physically demanding and potentially stressful elements. All personnel who participate in such training must be medically fit and capable of participating fully. Training providers are required to ensure that prior to participating in practical exercises the delegate possess a valid, current medical certificate.

This piece of information must be given to the delegates as part of the pre-course joining instructions.

If there is any doubt regarding the medical fitness of any delegate, the training provider must stop the training of the delegate and seek the advice of a physician

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

1.5. Aims and objectives of the Module Fire Awareness

The aims of this course are, to give the participants the basic knowledge and skills through theoretical and practical training to prevent fires, make initial and appropriate judgement when evaluating a fire, manage evacuation of personnel to ensure all are safely evacuated and accounted for in the event of an unmanageable fire, and, if it is judged to be safe, to efficiently extinguish an initial fire by using basic hand held fire fighting equipment.

The objectives of the BST Fire Awareness module are to ensure that:

- (a) The delegates are able to demonstrate knowledge of the development and spread of fire
- (b) The delegates are able to demonstrate knowledge of the causes of fires in wind turbines and the dangers related to this.

- (c) The delegates are able to identify any sign of a fire in a wind turbine environment
- (d) The delegates are able to demonstrate knowledge of the contingency plans in a wind turbine environment including smoke detection and emergency escape procedures.
- (e) The delegates are able to demonstrate correct actions on discovering a fire including correct operation and fire extinguishing by means of the fire fighting equipment in a WTG.

1.6. Learning outcomes of the BST Module Fire Awareness

The learning outcomes specified for the BST Module Fire Awareness are:

Lesson 1 Introduction

15 min

The aim of the lesson is to give the delegates the needed awareness of the main aspects of the course and the facilities involved in order to ensure that all delegates are aware of what to expect and what is expected of them in the course.

To successfully complete this module, delegates must be aware of:

- (1) Safety instructions and emergency procedures
- (2) Facilities
- (3) Who the instructor and other delegates are
- (4) Aims of the module and main learning objectives
- (5) On-going assessment according to GWO control measures
- (6) Motivation for the course

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

Lesson 2 Legislation

5 min.

The aim of the lesson is to give the delegates the needed awareness of relevant legislation and requirements that apply to fire prevention and fire fighting equipment in relation to the industry.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of global legislation relevant to fire prevention and fire fighting equipment in relation to the industry
- (2) Fire fighting equipment in relation to the industry
- (3) Knowledge of national legislation relevant to fire prevention and fire fighting equipment in relation to the industry.

Lesson 3 Fire combustion and fire spread

20 min

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of the different types of fires and the state of the material including the surface
- (2) Knowledge of the “square of combustion”
- (3) Understanding of fire spread and the dangers of smoke gases

Lesson 4 Fire extinguishing

25 min.

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

To successfully complete this module, delegates must be able to:

- (1) Demonstrate knowledge and understanding of the contingency plan and the importance of knowing what to do in a given emergency.
- (2) Demonstrate knowledge and understanding of how to assess a fire and know how to act in the given situation.
- (3) Identify the right fire extinguishing media according to the fire classes

Lesson 5 Fire prevention

20 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of hazards relating to fires within the wind industry
- (2) Knowledge and understanding of the importance of own behaviour as a fire preventive measure and how to improve fire safety in the daily work

Lesson 6 Fire fighting equipment in a WTG

20 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge and understanding of inspection before use of the various firefighting equipment in a WTG
- (2) Knowledge and understanding of safe distances and correct, efficient and safe use of the various firefighting equipment in a WTG
- (3) Knowledge and understanding of advantages and disadvantages of the various firefighting equipment in a WTG

Lesson 7 Practice and scenario based training

60 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Efficient and safe use of the firefighting equipment in a WTG
- (2) The ability to assess the fire and make the right approach upon discovering a fire in a WTG.

Lesson 8 Evaluation

15 min.

The aim of the lesson is to sum up the module and give the delegates the opportunity to make an open minded review of the training and the instructor.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Active participation in the evaluation

1.7. Delegate Performance Assessment

Delegates will be assessed according to the learning outcomes by means of direct observation and oral questions as appropriate.

Formal evaluation of knowledge:

According to control measures in **Section - 3.5**



Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

1.8. Timetable, BST Module Fire Awareness

The order in which the elements of the training module are delivered may vary.

Lesson		Element		Approximate Duration
1	Introduction	1.1	Safety instructions and emergency procedures	
		1.2	Facilities	
		1.3	Introduction	
		1.4	Aims and main learning objectives	
		1.5	On-going assessment according to GWO control measures	
		1.6	Motivation	
2	Legislation	2.1	Global legislation	
		2.2	National legislation	
		TOTAL		
3	Fire combustion And Fire spread	3.1	Types of fires	
		3.2	Square of combustion	
		3.3	Fire Spread	
		3.4	Smoke gases	
4	Fire extinction	4.1	Contingency plan	
		4.2	Assessing the fire	
		4.3	Fire classes	
5	Fire Prevention	5.1	Fire hazards	
		5.2	Fire preventive measures	
6	Fire fighting equipment in a WTG	6.1	Pre-use inspection	
		6.2	Correct use of fire fighting equipment	
7	Practice and scenario based training	7.1	Practice	
		7.2	Scenario based training	
8	Evaluation	8.1	Summary	
		8.2	Evaluation	
		8.3	Certificates	
GRAND TOTAL		200 min		

1.9. Elements, BST Module Fire Awareness

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training staff is to **explain**:

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

ELEMENT 1.2 Facilities

Training staff is to **explain**:

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

ELEMENT 1.3 Introduction

Training staff is to **give**:

- 1.3.1 A short introduction of themselves including their background as instructors

Delegates are to **give**:

- 1.3.2 A short introduction of themselves including job function and expected primary geographical job location

Training staff is to **explain**:

- 1.3.3 The programme of the module including time of breaks and meals

ELEMENT 1.4 Scope and main objective

Training staff is to **explain**:



- 1.4.1 Scope and main objectives of the module

ELEMENT 1.5 On-going assessments

Training staff is to **explain**:

- 1.5.1 The reasons for the on-going assessment
- 1.5.2 GWO control measures and its use

ELEMENT 1.6 Motivation

Training staff is to **explain**:

- 1.6.1 The importance of personal involvement in the course
- 1.6.2 The definition and need for correct Fire Awareness

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training staff is to **explain**:

- 2.1.1 Relevant legislation and requirements that apply to fire prevention and fire fighting equipment in relation to the industry (onshore)
- 2.1.2 Relevant legislation and requirements that apply to fire prevention and fire fighting equipment in relation to the industry (offshore)

ELEMENT 2.2 National legislation

Training staff is to **explain**:

- 2.2.1 Applicable legislation.
- 2.2.2 National legislative requirements.
- 2.2.3 Legal responsibilities.
- 2.2.4 Local authorities

Lesson 3 Fire combustion and fire spread

ELEMENT 3.1 Types of fires

Training staff is to **explain**:

- 3.1.1 Types of fires (solid, liquid, gas)
- 3.1.2 State of the material including the influence of the size of the surface



ELEMENT 3.2 square of combustion

Training staff is to **explain**:

- 3.2.1 The elements needed for a fire to occur by means of the 4 sides in the square of combustion (oxygen, material, temperature and chemical reaction)

ELEMENT 3.3 Fire spread

Training staff is to **explain and demonstrate**:

- 3.3.1 Fire spread by: (in relation to the wind energy industry)
- (a) Conduction.
 - (b) Convection.
 - (c) Radiation.
 - (d) Direct Burning.

ELEMENT 3.4 Smoke gases

Training staff is to **explain**:

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

Lesson 4 Fire extinguishing

ELEMENT 4.1 contingency plan

Training staff is to **explain and demonstrate**:

- 4.1.1 An example of a contingency plan in a wind turbine
4.1.2 Examples of the importance of knowing beforehand what to do in a given emergency

ELEMENT 4.2 Assessing the fire

Training staff is to **explain**:

- 4.2.1 Fire intensity curve
4.2.2 How to assess the fire and what to do based on the assessment

ELEMENT 4.3 Fire classes

Training staff is to **explain**:

- 4.3.1. Methods of extinguishing a fire with reference to the combustion square
- 4.3.2. Fire classes A,B,C,D,F
- 4.3.3. Which extinguishing media found in a WTG could be used for the various fire classes

Lesson 5 Fire prevention

ELEMENT 5.1 Fire hazards

Training staff is to **explain**:

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

ELEMENT 5.2 Fire preventive measures

Training staff is to **explain and demonstrate**:

- 5.2.1. How to improve fire safety in the daily work
- 5.2.2. Fixed systems in a WTG

Lesson 6 Firefighting equipment in a WTG

ELEMENT 6.1 pre-use inspection

Training staff is to **explain and demonstrate**:

- 6.1.1. The importance of pre-use inspection of the fire fighting equipment
- 6.1.2. How to perform pre-use inspection of the fire fighting equipment

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

ELEMENT 6.2 Correct use of fire fighting equipment

Training staff is to **explain and demonstrate**:

- 6.2.1. Safe distances and precautions with the various firefighting equipment (Handheld CO₂ -, dry chemical- and water extinguishers including fire blankets)
- 6.2.2. Correct, efficient and safe use of the various firefighting equipment in a WTG
- 6.2.3. Advantages and disadvantages of the various firefighting equipment in a WTG

Lesson 7 Practice and scenario based training

ELEMENT 7.1 Practice

Delegates are to **practice and demonstrate**:

- 7.1.1. Efficient and safe use of CO₂ and dry chemical extinguishers
- 7.1.2. Efficient and safe use of the fire blanket

Formal assessment of knowledge (see Section 1.7)

ELEMENT 7.2 Scenario based training

Training staff is to **explain and demonstrate**:

- 7.2.1. Safety procedures and emergency exits in WTG mock scenarios
- 7.2.2. Smoke development in an enclosed area and the correct reaction to such a situation

Delegates are to **demonstrate**:

- 7.2.3 Safe evacuation from a smoke filled area
- 7.2.4 Correct action on discovering fire or smoke in a WTG (various mock scenarios in WTG)

Formal assessment of knowledge (see Section 1.7)

Notes Lesson 7:

*(1) It would be for the best if each delegate practises the operation and use of **each** of the following types of fire extinguisher:*

- (a) CO₂.*
- (b) Dry chemical.*
- (c) Fire blanket.*

(2) The element in 7.2 must be carried out in a WTG mock scenario

Lesson 8 Evaluation

ELEMENT 8.1 Summary

Training staff is to:

- 8.1.1 Sum up the module and give the delegates final feedback

ELEMENT 8.2 Evaluation

Delegates are to:

- 8.2.1 Make a written evaluation

Training staff is to:

- 8.2.2 Give necessary feedback on the written evaluations

ELEMENT 8.3 Certificates

Training staff is to:

- 8.3.1 Hand out certificates and ensure that all delegates are registered with the right personal information on the certificate.

Section 2 - Resources for the Basic Safety Training

2.1. Trainer/Delegate Ratio

(1) The ratio shown for theory sessions indicates the maximum number of delegates attending the course.

(2) Other ratios indicate the maximum number of delegates to be supervised by an instructor during each activity.

Unit	Session	Ratio
Basic Fire Awareness	Theory	1:12
	Practical	2:12

2.2. Facilities

It is important to ensure that the full range of facilities is made available to ensure that the delegates get the most out of their training. The following facilities criteria must be adhered to.

Administration arrangements appropriate for the enrolment and certification of delegates and all aspects of the delivery of training must be in accordance with this standard.

Theory training area(s) must be designed to enable each delegate to see, hear and participate fully in the subject matter being taught.

Practical training areas must be designed to enable each delegate to individually, or as part of a team, see, hear and practice the following:

- (1) Training in a concreted area with adequate drainage to allow the delivery of all fire fighting exercises for 12 delegates, instructors and support staff
- (2) Fire scenarios in a WTG mock scenario

Note: All facilities must be maintained and where appropriate, inspected and tested in accordance with current national legislation and manufacturers recommendations.

Risk assessments must be conducted and documented for all training facilities.

The training provider must hold the required permits to operate the facilities.

2.3. Equipment

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

- (a) Handheld CO₂ -, dry chemical- and water extinguishers
- (b) fire blankets
- (c) Dummies
- (d) Personal Protective Equipment (PPE)

In order to comply with national legislation and standards, the equipment supplied and used by staff and delegates must follow the appropriate guidelines i. e.:

Europe- EN

UK - BS

USA - ANSI

Canada - CSA

Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

Section 3 - Administration and Certification

3.1 Delegate Performance Assessment

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

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

3.2 Validation

The maximum interval between successful completions of BST Module Fire Awareness is **24 months**.

3.3 Certification

Training providers are responsible for issuing a certificate directly to the delegate upon completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed according to the learning outcomes and must contain the following:

- (a) Training Provider's name.

- (b) Full GWO course title stating that it is GWO approved.
- (c) Delegate's name and date of birth.
- (d) Course dates.
- (e) Expiry date.
- (f) Training Provider's signature.

3.4 Records

The training provider must keep a register of the delegates who have completed the BST Module Fire Awareness.

On request from GWO or any of the members of GWO, the training provider must be able to verify the training and competence records of any specific delegate by name and date of birth.

3.5 Measures

The trainer keeps the control measure forms until completion/evaluation of the course

If a delegate fails to meet the demands, they must attend a new BST Module Fire Awareness.

3.6 Control measures

Find Control Measures form on next page.

Control measures

Name: _____

Date of birth (dd-mm-yyyy): _____

Course: BST Module Fire Awareness

Date: _____

Training provider: _____

Control measures	Non-conformity of control measures			0-2 passed/ 3 failed	Instructor Remarks
Paying attention					
Following directions					
Participation					
Recognise the need for the appropriate manual handling techniques					
Demonstrate correct and safe manual handling in course exercises					
Time: (full hours and exercise time)					
Total remarks (0-9 passed class) (10-18 failed class)					

Instructor: _____

Pass

Fail

The Control measures form is an evaluation tool for the instructors to measure the number of non-conformity in regard to safety, competency, or course involvement. It can be used as a



progressive evaluation tool to discuss the performance of a delegate in guiding them to success and it also serves as supporting documentation in the event that a delegate fails the module.



**GLOBAL WIND ORGANISATION
STANDARD**

Basic Safety Training (onshore/offshore)

WORKING AT HEIGHTS



Foreword

The Global Wind Organisation (GWO) is an association of Wind Turbines owners and manufacturers with the aim of supporting an injury free work environment in the wind industry.

This standard has been developed in response to the demand for recognizable Basic Safety Training (BST) in the industry. The development of this standard has been prepared in co-operation between the members of GWO. The work is based on risk assessments and factual incidents/accidents' statistics within the industry pertaining to the installation, service and maintenance of a wind turbine generator.

The objective of this standard is to develop common industry training and best practice standards on health and safety as a vital and necessary way forward to reduce risks for personnel in the wind industry working on site and to reduce environmental risks across Europe.

This standard describes the requirements for basic safety training in the wind industry recommended by GWO. Where national legislation sets higher requirements for the training, the training provider must incorporate those in the training programme.

The GWO basic safety training does not include any technical safety training such as working with electricity, equipment with stored energy etc. Other additional training may be required due to company or country specific requirements.

GWO recommends a specific company Basic Safety Induction and technical safety training as additional training.

Acknowledgement

The members of the Global Wind Organisation recognise that training according to this standard covers the requirements for Basic Safety Training for wind turbine technicians and personnel.

GWO members agree that everyone working on one of their properties (Wind Turbine Generator, sub stations etc.) must complete a Basic Safety Training course relevant for their assignment. All work must be done in teams at of a least 2 competent persons.

Exemptions from the above can be made based on internal company rules thereby allowing untrained persons to work with competent personnel or to work on a specific task.

The holder of a GWO certificate is considered competent within basic safety in the wind industry and the members of GWO accept the holder of the certificate as having the required knowledge to stop an unsafe work situation.

Glossary

BST	Basic Safety Training
BWH	Basic Working at Height
GWO	Global Wind Organisation
PPE	Personal Protective Equipment
WTG	Wind Turbine Generator
ANSI	American National Standards Institute
CSA	Canadian Standards Association
AS/NZS	Australia and New Zealand Standard
EN	European Standards

Introduction

The GWO approved Basic Safety Training provides delegates with a range of important skills and tools including Safety, Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable delegates to work in the offshore environment, an additional Sea Survival module must be completed.

Upon completion of the BST modules, delegates will have an awareness of the hazards encountered when working within the wind industry, and how to control and mitigate those hazards.

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

Target group

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

Section 1 - The Basic Safety Training (BST)

1.1. Duration of the BST Module Working at Heights

The optimum total time for completing this module is estimated to be **16 hours** incl. meals and breaks.

The training must be focused on the access and egress conditions of a wind turbine environment. The practical skills must be trained and demonstrated in a restricted area of movement and all elements in the course must be done by demonstration where ever possible. If this training is part of a programme of longer duration, the total contact time per day must not exceed 8 hours and the total training day must not exceed 10 hours. The total training day includes contact time, refreshment and meal breaks and travel between training sites where applicable. It must be ensured that everybody are given the opportunity to share their opinions and experiences where possible.

Make sure that delegates with prior experience share their experiences in a way that is constructive for the entire class. The course will still be taught as per lesson plan whether the delegate has prior experience or not.

1.2. Target group for the Module Working at Heights

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

1.3. Delegate prerequisites for the Module Working at Heights

A medical certificate that is accepted within each region respectively is a prerequisite for the delegate's participation in the module.

1.4. Physical and stressful demands of the Module Working at Heights

Basic safety training contains physically demanding and potentially stressful elements. All personnel who participate in such training must be medically fit and capable of participating fully. Training providers are required to ensure that prior to participating in practical exercises the delegate possess a valid, current medical certificate.

This piece of information must be given to delegates as part of the pre-course joining instructions. If there is any doubt regarding the medical fitness of any delegate, the training provider must stop the training of the delegate and seek the advice of a physician

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

1.5. Aims and objectives of the Module Working at Heights

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

The objectives of the BST module Working at Heights module are to ensure that:

- (a) The delegates are able to demonstrate knowledge of hazards and risks associated with working at height specific to a WTG.
- (b) The delegates are able to demonstrate understanding of current national legislation regarding working at heights.

(c) The delegates are able to demonstrate correct identification of PPE, including identification of European / Global standard markings e.g. harness, hard hat, lanyards etc.

(d) The delegates are able to demonstrate the knowledge and skills to correctly inspect, service, store and don the relevant PPE e.g. harness, lanyards, fall arresters and work positioning equipment.

(e) The delegates are able to demonstrate correct use of the relevant PPE e.g. harnesses lanyards, fall arresters and work positioning equipment. This includes correct identification of anchor points and correct ladder conduct.

(f) The delegates are able to demonstrate correct use of evacuation devices.

(g) The delegates are able to demonstrate how to approach rescue situations in WTG and use rescue equipment efficiently.

1.6. Learning outcomes of the BST Module Working at Heights

The learning outcomes specified for the BST Module Working at Heights are:

Lesson 1 Introduction

15 min

The aim of the lesson is to give the delegates the needed awareness of the main aspects of the course and the facilities involved in order to ensure that all delegates are aware of what to expect and what is expected of them in the course.

To successfully complete this module, delegates must be aware of:

- (1) Safety instructions and emergency procedures
- (2) Facilities
- (3) Who the instructor and other delegates are
- (4) Aims and main learning objectives
- (5) On-going assessment according to GWO control measures
- (6) Motivation on the course

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

Lesson 2 Legislation

20 min.

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



To successfully complete this module, delegates must be able to demonstrate:

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

Lesson 3 Harness

50 min

The aim of the lesson is to give the delegates the needed, sufficient, basic knowledge of selection, approval and inspection / check of PPE in work related situations.

To successfully complete this module, delegates must be able to:

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

Lesson 4 Vertical fall arrest system

40 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge and skills of legal requirement to use a fall arrest system when working at heights.
- (2) User inspection
- (3) Correct fitting
- (4) Correct use
- (5) Knowledge about correct country approval

Lesson 5 Fall arrest lanyard

15 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge regarding legal requirement to use a fall arrest system when working at height
- (2) How to affix the arrest system correctly on the harness with a starting point in the back at point A and in some situations in the A in front.
- (3) How they can see if it has experienced a fall. (Fall indicator).

- (4) Knowledge between the differences of a twin fall arrester and a single fall arrester, as well as the different ways of usage.
- (5) Knowledge of the different places which are allowed as anchor points.
- (6) Knowledge of the importance of always using a fall arrest system.
- (7) How to make a user check and see if it is approved by documentation / authorisation date.

Lesson 6 Work position lanyards

15 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) How to attach the lanyard correctly on the ladder system.
- (2) When using it, they must never slack due to their own safety.
- (3) How to attach it/them correctly to the harness. Either at the front A point or in both side D rings at once.
- (4) The different places it is allowed to secure or go around.
- (5) Knowledge of the importance of using work positioning in order to leave the hands free for work.
- (6) Knowledge of a user check and see if it is approved by documentation and authorisation date.

Lesson 7 Back-up system for exercises

15 min.

The aim of the lesson is to give the delegates the needed understanding of the importance of staying injury free.

To successfully complete this module, delegates must be able to demonstrate knowledge of:

- (1) The different types of back-up systems there are and how they are used, what length they come in, what the difference is between wire – strap.
- (2) The different maximum angles that are allowed.
- (3) How to apply it correctly on the harness, either in the A point on the back or in the A point in the front.
- (4) The different places it is allowed to secure it to.
- (5) The importance of using it
- (6) How to make a user check and see if it is approved / documentation / authorisation date.

Lesson 8 Practical exercises

55 min.

The aim of the lesson is to give the delegates the needed skills to be able to demonstrate safe and controlled rescue according to the control measures

To successfully complete this module, delegates must be able to demonstrate:

- (1) That they are able to use the fall arrest systems in a safe and correct fashion
- (2) That they are able to use the work position lanyards in a safe and correct fashion.
- (3) General understanding and use of all equipment.

Lesson 9 Workshop risks and hazards.

20 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) How to use basic Working at Height in a wind turbine environment.
- (2) That they can discuss and explain multiple perspectives acquired through group discussions.

Lesson 10 Emergency procedure

160 min.

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

To successfully complete this module, delegates must be able to demonstrate:

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

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

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

Lesson 11 PPE review

15 min.

The aim of the lesson is to give the delegates the possibility to tell about the individual parts of the PPE equipment and instruction in its use in their own words.

To successfully complete this module, delegates must be able to obtain knowledge regarding:

- (1) The individual parts of the PPE equipment and instruction in use.



Lesson 12 Rescue Device

10 min.

The aim of the lesson is to give the delegates the possibility to tell about the individual parts of the rescue equipment and instruction in its use in their own words.

To successfully complete this module, delegates must be able to obtain knowledge regarding:

- (1) The individual parts of the rescue equipment and instruction in use.

Lesson 13 Suspension trauma

10 min.

The aim of the lesson is to give the delegates the possibility to tell about ways to prevent suspension trauma and how to treat it in their own words.

To successfully complete this module, delegates must be able to obtain knowledge regarding:

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

Lesson 14 Rescue exercises

320 min.

The aim of the lesson is to give the delegates the possibility to approach rescue situations in wind turbines, to make a safe and correct rescue in wind turbines while using correct rescue devices and anchorage points and showing correct behaviour on ladder with PPE

To successfully complete this module, delegates must be able to demonstrate:

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

Lesson 15 Evaluation

15 min.

The aim of the lesson is to sum up the module and give the delegates the opportunity to make an open minded review of the training and the instructor.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Active participation in the evaluation

1.7. Delegate Performance Assessment

Delegates will be assessed according to the learning outcomes by means of direct observation and oral questions as appropriate.

Formal evaluation of knowledge:

According to control measures in **Section - 3.5**

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

1.8. Timetable, BST Module Working at Heights

The order in which the elements of the training module are delivered may vary.

Lesson		Element		Approximate Duration
1	Introduction	1.1	Safety instructions and emergency procedures	
		1.2	Facilities	
		1.3	Introduction	
		1.4	Aims and main learning objectives	
		1.5	On-going assessment.	
		1.6	Motivation.	
2	Legislation	2.1	Global.	
		2.2	National	
		TOTAL		
3	Harness	3.1	Proper inspection.	
		3.2	How to fit the harness.	
		3.3	How often the harness must be approved.	
		3.4	Documentation,	
		3.5	Maintenance.	
4	Vertical fall arrester systems	4.1	Legal requirements	
		4.2	User inspection	
		4.3	Correct fitting	
		4.4	Correct use	
		4.5	Knowledge of correct country approval	
		4.6	Correct documentation.	
5	Fall arrest lanyard	5.1	Legal requirements	
		5.2	How to affix arrest systems.	
		5.3	Fall indicator.	
		5.4	Twin fall arrest system and a single fall arrest system,	
		5.5	Different places which are allowed as anchor points.	
		5.6	The importance of always using a fall arrest system.	
		5.7	User check.	
6	Work position lanyards	6.1	How to attach lanyard correctly.	
		6.2	How to use it.	
		6.3	How to attach it/them correctly to the harness.	
		6.4	The different places it is allowed to secure or go around.	

		6.5	The importance of using work positioning in order to leave the hands free for work.	
		6.6	User check.	
			TOTAL	15 min
7	Back-up system for exercises	7.1	Types of back-up systems.	
		7.2	Different maximum angles that are allowed.	
		7.3	How to apply it correctly on the harness.	
		7.4	The different places it is allowed to secure.	
		7.5	The importance of using it.	
		7.6	Users check.	
			TOTAL	15 min
8	Practical exercises	8.1	Demonstrate that they are able to use the fall arrest systems.	
		8.2	Demonstrate that they are able to use the work position lanyards.	
		8.3	General understanding and use of all equipment.	
			TOTAL	55 min
9	Work Shop risks and hazards.	9.1	How the use basic Working at Height.	
			TOTAL	20 min
10	Emergency procedure	10.1	Contents of an evacuation box.	
		10.2	Safe and correct evacuation.	
		10.3	Prepare the equipment for use,	
		10.4	Safe behavior.	
			TOTAL	160 min
11	PPE review	11.1	The individual parts of the PPE equipment	
			TOTAL	15 min
12	Rescue Device	12.1	The individual parts of the different rescue equipment.	

			TOTAL	10 min
13	Suspension trauma	13.1	Suspension trauma.	
			TOTAL	10 min
14	Rescue exercises	14.1 14.2 14.3 14.4 14.5	Rescue situations in wind turbines. Safe and correct rescue. Correct usage of rescue devices. Correct usage of anchorage points. Correct behaviour on ladder with PPE.	
			TOTAL	320 min
15	Evaluation	15.1 15.2 15.3	Summary Evaluation Certificates	
				30 min
GRAND TOTAL			805 min	

1.9. Elements, BST Module Working at Heights

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training staff is to **explain**:

- 1.1.3 Safety instructions according to internal procedures
- 1.1.4 Emergency procedures and emergency exits in the areas where the delegates can be expected to be located during the course.

ELEMENT 1.2 Facilities

Training staff is to **explain**:

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

ELEMENT 1.3 Introduction

Training staff is to **give**:



- 1.3.1 A short introduction of themselves including background as instructor

Delegates are to **give**:

- 1.3.2 A short introduction of themselves including job function and expected primary geographical job location

Training staff is to **explain**:

- 1.3.3 The programme of the module including time of breaks and meals

ELEMENT 1.4 Scope and main objective

Training staff is to **explain**:

- 1.4.1 Scope and main objectives of the module

ELEMENT 1.5 On-going assessments

Training staff is to **explain**:

- 1.5.1 The reasons for the on-going assessment
1.5.2 GWO control measures and its use

ELEMENT 1.6 Motivation

Training staff is to **explain**:

- 1.6.1 The importance of personal involvement in the course
1.6.2 The definition and need for correct Working at Heights

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training staff is to **explain**:

- 2.1.1 Applicable legislation.
2.1.2 Legal responsibilities.

ELEMENT 2.2 National legislation

Training staff is to **explain**:

- 2.2.1 Applicable legislation.
- 2.2.2 Legislative requirements.
- 2.2.3 Legal responsibilities.
- 2.2.4 Role of first aid in the industry.

Lesson 3 Harness

ELEMENT 3.1 Proper inspection of PPE

Training staff is to **explain and demonstrate**:

- 3.1.1 Selecting the correct sized harness for the work intended.
- 3.1.2 Correct identification of the relevant standard markings.
- 3.1.3 Manufacturer and/or legal inspection periods.
- 3.1.4 Correct storage and maintenance (e.g. store in a dry environment, wash with fresh water)

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

- (a) Stitching.
- (b) Metal Parts.
- (c) Straps.
- (d) Back protection.
- (e) D-rings.
- (f) Soiling of harness (e.g. oil spills).
- (g) Saltwater exposure. Locks.

ELEMENT 3.2 How to fit the harness correctly

Delegates are to **practice and demonstrate**

- 3.2.1 Fitting a harness correctly is like building a house, from the bottom and up
- 3.2.2 Shoulder straps should be loosened
- 3.2.3 Legs straps, strapped so it sits well, you should be able to push a few fingers down
- 3.2.4 Abdominal strap, strapped so it sits well
- 3.2.5 Chest strap, strapped just above or on the chest.
- 3.2.6 Pivot link must be at the hip when succumb down, it must be flexible. It may not sit so high that it can damage ribs and internal organs by fall.

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

Training staff is to **explain and demonstrate**:

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

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

Training staff is to **explain**:

- 3.4.1 Documentation, instrument number, authorisation date, etc.

ELEMENT 3.5 Maintenance of PPE

Training staff is to **explain**:

- 3.5.1 Maintenance of PPE

Lesson 4 Vertical fall arrest system

ELEMENT 4.1 Legal requirement to use a fall arrest system when working at heights.

Training staff is to **explain and demonstrate**:

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

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

Training staff is to **explain and demonstrate**:

- 4.2.1 Damage or corrosion of rail / wire.
- 4.2.2 Damage or corrosion of glider / slider.
- 4.2.3 Saltwater exposure.
- 4.2.4 Locks.

ELEMENT 4.3 Correct fitting

Training staff is to **explain and demonstrate**:

- 4.3.1 Correct fitting to different vertical fall arrest systems

ELEMENT 4.4 Correct use

Training staff is to **explain and demonstrate**:

- 4.4.1 Correct use of different vertical fall arrest systems.

ELEMENT 4.5 Correct country approval

Training staff is to **explain and demonstrate**:

4.5.1 How the delegates can find the correct country approval.

ELEMENT 4.6 Correct documentation.

Training staff is to **explain and demonstrate**:

4.6.1 How the delegates can find the correct documentation.

Lesson 5 Fall arrest lanyard

ELEMENT 5.1 Fall arrest lanyard

Training staff is to **explain and demonstrate**:

5.1.1 Legal requirements for using a fall arrest system when working at height

ELEMENT 5.2 How to affix arrest system correctly on the harness

Training staff is to **explain and demonstrate**:

5.2.1 How to affix arrest system correctly on the harness. With a starting point in the back a point A, and in some situations in the A in front.

ELEMENT 5.3 Fall indicator.

Training staff is to **explain and demonstrate**:

5.3.1 How the delegates can see if the fall arrest lanyard has experienced a fall?

ELEMENT 5.4 Twin fall arrest system and a single fall arrest system,

Training staff is to **explain and demonstrate**:

5.4.1 The difference between a twin fall arrest system and a single fall arrest system as well the different ways of usage and to pay attention to each manufacturer's guidelines.

ELEMENT 5.5 Different places which are allowed as anchor points.

Training staff is to **explain and demonstrate**:

5.5.1 The different places which are allowed as anchor points.

(a) Approved anchor points must be pointed out, so that it is clear for the delegates.

ELEMENT 5.6 The importance of always using a fall arrest system.

Training staff is to **explain and demonstrate**:

- 5.6.1 The delegates must understand the importance of always using a fall arrest system.

ELEMENT 5.7 User Check

Training staff is to **explain and demonstrate**:

- 5.7.1 User check according to the manufacturer's guideline and see if it is approved by documentation / authorisation date.

Lesson 6 Work position lanyards

ELEMENT 6.1 How the delegates attach the lanyard correctly

Training staff is to **explain and demonstrate**:

- 6.1.1 How the delegates attach the lanyard correctly:
 - (a) On the ladder system.
 - (b) Other places where it is possible to use the lanyard.

ELEMENT 6.2 How to use it.

Training staff is to **explain and demonstrate**:

- 6.2.1 When using it, they must never slack due to their own safety.
 - (a) To pay attention to the manufacture guidelines.

ELEMENT 6.3 How the delegates attach the lanyards correctly to the harness.

Training staff is to **explain and demonstrate**:

- 6.3.1 How to attach it/them correctly to the harness. Either in the front A point or in both side D rings at once.

ELEMENT 6.4 The different places it is allowed to secure or go around.

Training staff is to **explain and demonstrate**:

- 6.4.1 The different places it is allowed to secure or go around.

ELEMENT 6.5 The importance of using work positioning.

Training staff is to **explain and demonstrate**:

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

ELEMENT 6.6 User Check

Training staff is to **explain and demonstrate**:

- 6.6.1 User check according to the manufacturer's guideline and see if it is approved by documentation / authorisation date.

Lesson 7 Back-up system for exercises.

ELEMENT 7.1 Types of back-up system

Training staff is to **explain and demonstrate**:

- 7.1.1 The different types of back-up systems and how they are used, what length they come in, what the difference is between wire – strap.

ELEMENT 7.2 Different maximum angles that are allowed.

Training staff is to **explain and demonstrate**:

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

ELEMENT 7.3 How to apply it correctly on the harness.

Training staff is to **explain and demonstrate**:

- 7.3.1 How to apply it correctly on the harness, either in the A point on the back or in the A point in the front.

ELEMENT 7.4 The different places it is allowed to secure.

Training staff is to **explain and demonstrate**:

- 7.4.1 The different places it is allowed to secure the back-up systems.

ELEMENT 7.5 The importance of using back-up systems.

Training staff is to **explain and demonstrate**:

- 7.5.1 The importance of using back-up systems for exercises

ELEMENT 7.6 User check

Training staff is to **explain and demonstrate**:

- 7.6.1 User check according to the manufacturer's guideline, and see if it is approved by documentation / authorisation date.

Lesson 8 Practical exercises.

ELEMENT 8.1 Demonstrate that they are able to use the fall arrest systems.

Delegates are to **practice and demonstrate**:

8.1.1 That they are able to use the fall arrest systems in a safe and correct fashion.

ELEMENT 8.2 Demonstrate that they are able to use the work position lanyards

Delegates are to **practice and demonstrate**:

8.2.1 That they are able to use the work position lanyards in a safe and correct fashion.

ELEMENT 8.3 General understanding and use of all equipment.

Delegates are to **practice and demonstrate**:

8.3.1 General understanding and use of all equipment.

Lesson 9 Workshop on risks and hazards.

ELEMENT 9.1 How the delegates use Working at Height

Delegates are to **practice and demonstrate**:

9.1.1 How to use basic Working at Height in a wind turbine environment.

- (a) That they can discuss and explain multiple perspectives acquired through group discussions.

Note 9.1.1 (a) *The class will be divided into three groups of four delegates.*

The delegates should use 10 minutes to discuss and generate ideas about rescue and emergency situations in the wind turbine environment.

Each group should write the ideas on a flipchart which the instructor can display to enhance a large group discussion with the entire class during the remaining 10 minutes of the workshop.

Lesson 10 Emergency procedures

ELEMENT 10.1 Contents of an evacuation box.

Training staff is to **explain and demonstrate**:

10.1.1 The contents of an evacuation box and how the equipment is used in practice.

ELEMENT 10.2 Safe and correct evacuation.

Training staff is to **explain and demonstrate**:

10.2.1 A safe and correct evacuation, which must include:

- (a) Attaching the evacuation device.
- (b) Fastening the device to the harness.



- (c) Removing the escape hatch door.
- (d) Deploying the rope bag and inspecting it for knots / length.
- (e) Sitting in the open hatch and putting tension on the rope.
- (f) Holding onto the rope while getting out of the hatch.
- (g) Evacuating to ground level.
- (h) Disconnecting the evacuation device.

ELEMENT 10.3 Prepare the equipment for use.

Training staff is to **explain and demonstrate**:

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

ELEMENT 10.4 Safe behaviour

Training staff is to **explain and demonstrate**:

- 10.4.1 Safe behaviour in connection with evacuation.

Delegates are to **demonstrate**:

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

* The height must be a minimum of 6.75m

Notes 10

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

Lesson 11 PPE review

ELEMENT 11.1 The individual parts of the PPE equipment

Delegates must **explain knowledge of**:

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

Lesson 12 Rescue Devices



ELEMENT 12.1 The individual parts of different rescue equipment.

Training staff must **explain and demonstrate**:

- 12.1.1 The individual parts of different rescue devices including accessory and instruction in use.

Lesson 13 Suspension trauma

ELEMENT 13.1 Suspension trauma

Training staff must **explain and demonstrate**:

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

Lesson 14 Rescue exercises

ELEMENT 14.1 Rescue situations in wind turbines

Training staff must **explain and demonstrate**:

- 14.1.1 How to approach rescue situations in wind turbines.

ELEMENT 14.2 Safe and correct rescue

Training staff must **explain and demonstrate**:

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

The exercises have to include;

- (a) Handling a conscious / unconscious casualty
- (b) Suspension trauma.
- (c) Connecting the karabiner to the casualty's harness.
- (d) Applying tension on the rope to enable safe disconnection of the casualty's Fall arrest and/or work positioning lanyard.
- (e) Safe descent of casualty.

ELEMENT 14.3 Correct usage of rescue devices.

Training staff must **explain and demonstrate**:

- 14.3.1 Correct usage of rescue devices, including:

- (a) User inspection and test.
- (b) Anchor points and positioning of the devices
- (c) Slings
- (d) Weight loads of equipment
- (e) Correct behaviour on ladder with PPE

ELEMENT 14.4 Correct usage of anchorage points

Training staff must **explain and demonstrate**:

14.4.1 Correct usage of anchorage points

ELEMENT 14.5 Correct behaviour on the ladder with PPE

Training staff must **explain and demonstrate**:

14.5.1 Correct behaviour on ladder with PPE

Delegates are to **Demonstrate**:

Correct use of the evacuation / rescue device, including;

- (a) User Inspection and test.
- (b) Use of correct anchor points.
- (c) Correct behaviour on ladder with PPE.

Correct methods of rescue, including;

- (a) Rescue of a **conscious** casualty secured by their work positioning lanyard (outside of the ladder).
- (b) Rescue of an **unconscious** casualty secured in their work positioning lanyard (outside of the ladder, with overhang)
- (c) Rescue of a **conscious** casualty hanging by their fall arrest, secured by their work positioning lanyard (inside of the ladder).
- (d) Rescue of an **unconscious** casualty hanging by their fall arrest, by use of rescue device on the casualty (inside of the ladder).

Formal assessment of knowledge (see Section 1.7)

Notes 14

- (a) During the rescue scenarios, a rescue dummy can be used in simulation of a casualty.*
- (b) The instructor will confirm to the delegate whether the casualty is conscious or unconscious. Delegates can demonstrate the recovery position / seated position once the dummy has been lowered to a safe area.*
- (c) All appropriate PPE must be worn during these exercises.*

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

Lesson 15 Evaluation

ELEMENT 15.1 Summary

Training staff is to:

15.1.1 Sum up the module and give the delegates final feedback

ELEMENT 15.2 Evaluation

Delegates are to:

15.2.1 Make a written evaluation

Training staff is to:

15.2.2 Give necessary feedback on the written evaluations

ELEMENT 15.3 Certificates

Training staff is:

15.3.1 Hand out certificates and ensure all delegates are registered with the correct personal information on the certificate.

NOTE 15: *The course is summarised and ended. At the end of the course the participants are asked to share their new knowledge, and to pass on the “GWO-rescue-spirit” to their colleagues*

Another purpose is to make the participants evaluate the teacher/ teachers and the content of the course both orally and written. Finally the certificates are handed out.

Section 2 - Resources for the Basic Safety Training

2.1. Trainer/Delegate Ratio

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

Unit	Session	Ratio
Basic Working at Heights	Theory	1:12
	Practical	1:4

2.2. Facilities

It is important to ensure that the full range of facilities is made available to the delegates in order to ensure that they get the most out of their training. The following facilities criteria must be adhered to.

Administration arrangements appropriate for the enrolment and certification of delegates and all aspects of the delivery of training must be in accordance with this standard.

Theory training area(s) must be designed to enable each delegate to see, hear and participate fully in the subject matter being taught.

Practical training areas must be designed to enable each delegate to individually, or as part of a team, see, hear and practice in a WTG environment.

- (1) Safe and correct rescue in WTG.
- (2) First Aid relating to rescue, including;
 - a) Conscious / unconscious casualty handling.
 - b) Suspension trauma.

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

Risk assessments must be conducted and documented for all training facilities.

The training provider must hold the required permits to operate the facilities.

2.3. Equipment

The following equipment is required to meet the needs of the training BST Module Working at Heights

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

Europe

Harness according to EN361/813

Work restraint lanyards according to EN358

Fall arrest according to EN355

Helmets according to EN397

Vertical fall arrest system according to EN353-1/-2

Self-Retractable Lifeline (SRL) according to EN360

Anchor points according to EN795

Slings EN566

Triple lock carabine EN362

Evacuation/Rescue devices EN341/1496

Aluminium ladders EN18799-1

USA after ANSI standards, equivalent to the EN norms described above.

Canada after CSA standards, equivalent to the EN norms described above.

Australia and New Zealand after AS/NZS standards, equivalent to the EN norms described above.

Asia normally accepts ANSI and to some extent EN, query from country to country.

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

Section 3 - Administration and Certification

3.1 Delegate Performance Assessment

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

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

3.2 Validation

The maximum interval between successful completions of BST Module Working at Heights is **24 months**.

3.3 Certification

Training providers are responsible for issuing a certificate directly to the delegate upon completion of the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed according to the learning outcomes and must contain the following:

- (a) Training Provider's name.
- (b) Full GWO course title stating that it is GWO approved.



- (c) Delegate's name and date of birth.
- (d) Type of equipment used in course and maximum training height.
- (e) Course dates.
- (f) Expiry date.
- (g) Training Provider's signature.

Note: (d) Applicable to BST Module Working at Heights. manufacturer and type of fall arrest system or rescue equipment. The course is not designed to test the delegate's capability and aptitude for working in height. However, a climb to a higher height than the minimum height stated in this standard can be an indicator of the delegates' capability and aptitude for working at height. The maximum height used during the training must be stated on the certificate.

3.4 Records

The training provider must keep a register of the delegates who have completed the BST Module Working at Heights.

On request from GWO or any of the members of GWO, the training provider must be able to verify the training and competence records of any specific delegate by name and date of birth.

3.5 Measures

The trainer keeps the control measures forms until the completion/evaluation of the module

If a delegate fails to meet the demands, they must attend a new BST Module Working at Heights.

3.6 Control measures

Find Control measures form on next page.

Control measures

Name: _____

Date of birth (dd-mm-yyyy): _____

Course: BST Module Working at Heights

Date: _____

Training provider: _____

Control measures	Non-conformity of control measures			0-2 passed/ 3 failed	Instructor Remarks
Paying attention					
Following directions					
Participation					
Recognise the need for the appropriate manual handling techniques					
Demonstrate correct and safe manual handling in course exercises					
Time: (full hours and exercise time)					
Total remarks (0-9 passed class) (10-18 failed class)					

Instructor: _____

Pass

Fail

The Control measures form is an evaluation tool for the instructors to measure the number of non-conformity in regard to safety, competency, or course involvement. It can be used as a



progressive evaluation tool to discuss the performance of a delegate in guiding them to success and it also serves as supporting documentation in the event that a delegate fails the course.



**GLOBAL WIND ORGANISATION
STANDARD**

Basic Safety Training (offshore)

SEA SURVIVAL



Foreword

The Global Wind Organisation (GWO) is an association of Wind Turbines owners and manufacturers with the aim of supporting an injury free work environment in the wind industry.

This standard has been developed in response to the demand for recognizable Basic Safety Training (BST) in the industry. The development of this standard has been prepared in co-operation between the members of GWO. The work is based on risk assessments and factual incidents/accidents' statistics within the industry pertaining to the installation, service and maintenance of a wind turbine generator.

The objective of this standard is to develop common industry training and best practice standards on health and safety as a vital and necessary way forward to reduce risks for personnel in the wind industry working on site and to reduce environmental risks across Europe.

This standard describes the requirements for basic safety training in the wind industry recommended by GWO. Where national legislation sets higher requirements for the training, the training provider must incorporate those in the training programme.

The GWO basic safety training does not include any technical safety training such as working with electricity, equipment with stored energy etc. Other additional training may be required due to company or country specific requirements.

GWO recommends a specific company Basic Safety Induction and technical safety training as additional training.

Acknowledgement

The members of the Global Wind Organisation recognise that training according to this standard covers the requirements for Basic Safety Training for wind turbine technicians and personnel.

GWO members agree that everyone working on one of their properties (Wind Turbine Generator, sub stations etc.) must complete a Basic Safety Training course relevant for their assignment. All work must be done in teams of at least 2 competent persons.

Exemptions from the above can be made based on internal company rules thereby allowing untrained persons to work with competent personnel or to work on a specific task.

The holder of a GWO certificate is considered competent within basic safety in the wind industry and the members of GWO accept the holder of the certificate as having the required knowledge to stop an unsafe work situation.

Glossary

Glossary

BST	Basic Safety Training
EPIRB	Emergency Position Indicating Radio Beacon
GWO	Global Wind Organisation
H.E.L.P	Heat Escape Lessening Posture
LSA	Life Saving Appliances
PPE	Personal Protective Equipment
SAR	Search and Rescue
SART	Search and Rescue Transponder
WTG	Wind Turbine Generator
GMDSS	Global Maritime Distress and Safety System
PLB	Personal Locating Beacon
MOB	Man Over Board

INTRODUCTION

The GWO approved Basic Safety Training provides delegates with a range of important skills and tools including Safety, Fire Awareness, First Aid, Working at Heights and Manual Handling. To enable delegates to work in the offshore environment, an additional Sea Survival module must be completed.

Upon completion of the BST modules, delegates will have an awareness of the hazards encountered when working within the wind industry, and how to control and mitigate those hazards.

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

Target group

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

Section 1 - The Basic Safety Training (BST)

1.1. Duration of the BST Module Sea Survival.

The optimum total time for completing this module is estimated to be **3 x 4 hours** incl. meals and breaks.

The training must be focused on the access and egress conditions of a wind turbine environment. The practical skills must be trained and demonstrated in a restricted area of movement and all elements in the course must be done by demonstration where ever possible.

If this training is part of a programme of longer duration, the total contact time per day must not exceed 8 hours and the total training day must not exceed 10 hours. The total training day includes contact time, refreshment and meal breaks and travel between training sites where applicable.

It must be ensured that everybody are given the opportunity to share their opinions and experiences where possible.

Make sure that delegates with prior experience share their experiences in a way that is constructive for the entire class.

The course will still be taught as per lesson plan whether the delegate has prior experience or not.

1.2. Target group for the Module Sea Survival

The Basic Safety Training is designed to provide personnel with the basic skills that will enable them to work in a safe manner in the wind industry and to meet emergency response training requirements for personnel new to the global wind industry. It is designed to accommodate personnel working both onshore and offshore.

1.3. Delegate prerequisites for the Module Sea Survival

A medical certificate that is accepted within each region respectively is a prerequisite for the delegate's participation in the module.

1.4. Physical and stressful demands of the Module Sea Survival

Basic safety training contains physically demanding and potentially stressful elements. All personnel who participate in such training must be medically fit and capable of participating fully. Training providers are required to ensure that prior to participating in practical exercises the delegate possess a valid, current medical certificate.

This piece of information must be given to delegates as part of the pre-course joining instructions. If there is any doubt regarding the medical fitness of any delegate the training provider must stop the training of the delegate and seek the advice of a physician

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

1.5. Aims and objectives of the Module Sea Survival

The aims of this course is, by theoretical and practical training to give the participants the basic knowledge and skills to act safe 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 a given emergency in an offshore wind energy environment.

The objectives of the BST Sea Survival module are to ensure that:

- (a) The delegates are able to demonstrate knowledge of dangers and symptoms in relation to hypothermia and drowning
- (b) The delegates are able to demonstrate understanding of the advantages and limitations of the different LSA, PPE and PFPE commonly used offshore in the wind energy industry and are able to don and use them accordingly.
- (c) The delegates are able to demonstrate safe transfer from vessel to dock, vessel to foundation and vessel to vessel
- (d) The delegates are able to demonstrate knowledge of the emergency and safety procedures on installations, vessels and WTG
- (e) The delegates are able to demonstrate knowledge of SAR and GMDSS

- (f) The delegates are able to demonstrate recovery and first aid treatment of a “man over board”
- (g) The delegates are able to demonstrate evacuation from “WTG” to water by means of “Constant Rate Descender”
- (h) The delegates are able to demonstrate individual and collective survival techniques at sea

1.6. Learning outcomes of the BST Module Sea Survival

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

Lesson 1 Introduction

15 min

The aim of the lesson is to give the delegates the needed awareness of the main aspects of the course and the facilities involved in order to ensure that all delegates are aware of what to expect and what is expected of them in the course.

To successfully complete this module, delegates must be aware of:

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

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

Lesson 2 Legislation

20 min.

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

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of the site organisation and the various units on a site
- (2) Knowledge of global legislation relevant to sea survival
- (3) Knowledge of national legislation relevant to sea survival

Lesson 3 Exposure, Hypothermia and Drowning

35 min

The aim of the lesson is to give the delegates the needed knowledge and skills to understand the importance of correct clothing and conduct in relation to the various exposures to the human body when working in an offshore wind environment. As well as detect and treat the various stages of hypothermia and drowning.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Understanding of the human body's reaction to the different environments offshore when exposed to them and what precautions to take
- (2) Understanding of how to detect the symptoms of drowning including the correct first aid procedures
- (3) Demonstrate how to detect the symptoms of hypothermia at the various stages including the correct first aid procedures for each stage.

Lesson 4 Life Saving Appliances and PPE

35 min.

The aim of the lesson is to give the delegates the needed knowledge and skills to recognise the advantages and limitation of personal LSA and PPE and use it in a correct and safe manner.

To successfully complete this module, delegates must be able to:

- (1) Demonstrate knowledge of advantages and limitations of personal LSA and PPE related to the industry
- (2) Demonstrate knowledge of advantages and limitations of LSA related to the industry

Lesson 5 Safe transfer

40 min.

The aim of the lesson is to give the delegates the needed knowledge and skills to recognise the hazards of transfer and take the correct preventive measures in to account by following procedures and use the personal LSA and PPE in a correct and safe manner.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of the importance of the safety induction on-board transfer vessels
- (2) Understanding of hazards related to the different types of transfer and how to make safe transfer in each situation.
- (3) Understanding of the safe handling of equipment and storage

Lesson 6 Installations, vessels and WTG

25 minutes

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

To successfully complete this module, delegates must be able to demonstrate:

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

Lesson 7 Man Over Board

15 min.

The aim of the lesson is to give the delegates the needed knowledge and skills to act and assist according to procedure in the case of a person falling over board an installation, vessel or WTG.

To successfully complete this module, delegates must be able to demonstrate:

- (1) An understanding of the various MOB procedures and equipment on installation, vessel or WTG

Lesson 8 SAR and GMDSS

15 min.

The aim of the lesson is to give the delegates the needed knowledge in relation to GMDSS and SAR organisation and that will enable the candidates to understand and act accordingly to enhance the efficiency and response time of the SAR operation and thereby their own evacuation.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Knowledge of the SAR organisation and GMDSS
- (2) Understanding of the use and differences of the various transponders
- (3) Actions to enhance detection

Lesson 9 Practical sea survival

200 min.

The aim of the lesson is to give the delegates the needed skills to enhance the chance of survival in a given emergency at sea,

To successfully complete this module, delegates must be able to:

- (1) Demonstrate correct donning and use of LSA and PPE and by doing so be able to perform an effective buddy check.
- (2) Demonstrate a safe evacuation from a "WTG" by descending into the water
- (3) Demonstrate the various techniques to enhance the individual and collective chances of survival and evacuation.

- (4) Demonstrate the correct use of a life raft in order to enhance the chances of survival in a given emergency at sea.
- (5) Demonstrate correct behaviour in relation to own rescue from water to helicopter without assistance from helicopter rescue swimmer.
- (6) Demonstrate the needed skills to survive a given emergency at sea both by own means and in co-operation with others.

Lesson 10 Transfer practical

190 min.

To successfully complete this module, delegates must be able to:

- (1) Demonstrate safe transfer of oneself and equipment from dock to vessel.
- (2) Demonstrate safe transfer of oneself and equipment from vessel to WTG and back
- (3) Demonstrate safe transfer from vessel to vessel while making way.
- (4) Demonstrate skills to act accordingly in case of falling over board. Furthermore, the delegates must demonstrate the skills to assist in the recovery of others.

Lesson 11 Evaluation

15 min.

The aim of the lesson is to sum up the module and give the delegates the opportunity to make an open minded review of the training and the instructor.

To successfully complete this module, delegates must be able to demonstrate:

- (1) Active participation in the evaluation

1.7. Delegate Performance Assessment

Delegates will be assessed according to the learning outcomes by means of direct observation and oral questions as appropriate.

Formal evaluation of knowledge:

According to control measures in **Section - 3.5**

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

1.8. Timetable, BST Module Sea Survival

The order in which the elements of the training module are delivered may vary.

Lesson		Element		Approximate Duration
1	Introduction	1.1	Safety instructions and emergency procedures	
		1.2	Facilities	
		1.3	Introduction	
		1.4	Aims and main learning objectives	
		1.5	On-going assessment according to GWO control measures	
		1.6	Motivation	
			TOTAL	15 min
2	Legislation	2.1	Global legislation	
		2.2	National legislation	
			TOTAL	20 min
3	Exposure, Hypothermia and Drowning	3.1	Exposure,	
		3.2	Hypothermia	
		3.3	Drowning	
			TOTAL	35 min
4	Life Saving Appliances and PPE	4.1	Personal LSA and PPE	
		4.2	Collective LSA	
			TOTAL	35 min
5	Safe transfer	5.1	Hazards	
		5.2	Transfer vessels	
		5.3	Safe transfer from dock to vessel	
		5.4	Safety introduction on board	
		5.5	Safe transfer from vessel to WTG	
		5.6	Safe transfer from vessel to vessel	
			TOTAL	40 min
6	Installations, vessels and WTG	6.1	Contingency plans	
			TOTAL	25 min
7	Man Over Board	7.1	Man Over Board	
			TOTAL	15 min
8	SAR and GMDSS	8.1	SAR	
		8.2	GMDSS	
			TOTAL	15 min
9	Sea survival	9.1	LSA and PPE	

	practical			
		9.2	Sea survival techniques	
		9.3	Emergency descent	
		9.4	Life raft	
		9.5	Helicopter rescue from water	
		9.6	Summary by exercise	
			TOTAL	200 min
10	Transfer practical	10.1	Dock to vessel	
		10.2	Vessel to WTG	
		10.3	Vessel to vessel	
		10.4	Man over board	
			TOTAL	190
11	Evaluation	11.1	Summary	
		11.2	Evaluation	
		11.3	Certificates	
			TOTAL	15 min
GRAND TOTAL			600 min	

1.9. Elements, BST Module Sea Survival

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training staff is to **explain**:

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

ELEMENT 1.2 Facilities

Training staff is to **explain**:

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

ELEMENT 1.3 Introduction

Training staff is **give**:



- 1.3.1 A short introduction of themselves including background as instructor

Delegates are to **give**:

- 1.3.2 A short introduction of themselves including job function and expected primary geographical job location

Training staff is to **explain**:

- 1.3.3 The programme of the module including time of breaks and meals

ELEMENT 1.4 Scope and main objective

Training staff is to **explain**:

- 1.4.1 Scope and main objectives of the module

ELEMENT 1.5 On-going assessments

Training staff is to **explain**:

- 1.5.1 The reasons for the on-going assessment
1.5.2 GWO control measures and its use

ELEMENT 1.6 Motivation

Training staff is to **explain**:

- 1.6.1 The importance of personal involvement in the course
1.6.2 The definition and need for correct Sea Survival

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training staff is to **explain**:

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



ELEMENT 2.2 National legislation

Training staff is to **explain**:

- 2.2.1 Applicable legislation.
- 2.2.2 Legislative requirements.
- 2.2.3 Legal responsibilities.

Lesson 3 Exposure, Hypothermia and Drowning

ELEMENT 3.1 EXPOSURE

Training staff is to **explain**:

- 3.1.1 Different types of exposures and precautions to these.

ELEMENT 3.2 Hypothermia

Training staff is to **explain and demonstrate**:

- 3.2.1 The various stages of hypothermia and the symptoms and the correct first aid treatment for each stage.

Delegates are to **demonstrate**:

- 3.2.2 The correct first aid treatment for each stage of hypothermia

Formal assessment of knowledge (see Section 1.7)

ELEMENT 3.3 Drowning

Training staff is to **explain and demonstrate**:

- 3.3.1 Symptoms and correct first aid treatment for drowning
- 3.3.2 Secondary drowning

Lesson 4 Life Saving Appliances and PPE

ELEMENT 4.1 personal LSA and PPE

Training staff is to **explain and demonstrate**:

- 4.1.1 Advantages and limitations of the different personal LSA and PPE related to the industry
- 4.1.2 The correct use of the different personal LSA and PPE

4.1.3 Correct maintenance and storage of personal LSA and PPE

ELEMENT 4.2 Collective LSA

Training staff is to **explain**:

- 4.2.1 In brief the advantages and limitations of the different collective LSA related to the industry.

Lesson 5 Safe transfer

ELEMENT 5.1 Hazards

Training staff is to **explain**:

- 5.1.1 The hazards of transfer and preventive measures to avoid injuries

ELEMENT 5.2 Transfer vessels

Training staff is to **explain**:

- 5.2.1. In brief the different types of transfer vessels commonly used by the industry

ELEMENT 5.3 Safe transfer from dock to vessel

Training staff is to **explain**:

- 5.3.1. Safe transfer from dock to vessel
5.3.2. Safe handling of equipment and storage

ELEMENT 5.4 Safety introduction on-board

Training staff is to **explain**:

- 5.4.1. The content and importance of the safety briefing and vessel conduct on-board

ELEMENT 5.5 Safe transfer from vessel to WTG

Training staff is to **explain**:

- 5.5.1. Safe transfer from vessel to WTG and back including:
- (a) Use of twin lanyards.
 - (b) Use of retractable arrester.

ELEMENT 5.6 Safe transfer from vessel to vessel

Training staff is to **explain**:

5.6.1 Safe transfer from vessel to vessel

Lesson 6 Installations, vessels and WTG

ELEMENT 6.1 Contingency plans

Training staff is to **explain and demonstrate**:

- 6.1.1. General safety on-board installations, vessels and WTG
- 6.1.2. Contingency plans on installations, vessels and WTG

Lesson 7 Man Over Board

ELEMENT 7.1 Man Over Board

Training staff is to **explain**:

- 7.1.1 MOB procedures on installation, vessel or WTG to include what to do if one falls over board or sees a person falling over board
- 7.1.2 Different types of recovery equipment and methods

Lesson 8 SAR and GMDSS

ELEMENT 8.1 SAR

Training staff is to **explain and demonstrate**:

- 8.1.1 SAR organisation and joint SAR operations

ELEMENT 8. 2 GMDSS

Training staff is to **explain and demonstrate**

- 8.2.1 GMDSS incl. transponders and locators
 - (a) EPIRB
 - (b) SART
 - (c) PLB

- 8.2.2 Actions to enhance detection

Lesson 9 Practical sea survival

ELEMENT 9.1 LSA and PPE

Delegates are to **demonstrate**:



- 9.1.1 Correct donning and use of personal LSA and PPE
- 9.1.2 Buddy check

ELEMENT 9.2 Sea survival techniques

Training staff is to **explain and demonstrate**

- 9.2.1 Sea survival techniques
 - (a) Safe entry into the water from a height
 - (b) H.E.L.P
 - (c) Individual swimming techniques
 - (d) Collective swimming techniques
 - (e) Collective techniques to prevent hypothermia
 - (f) Techniques to enhance chances of being spotted

Delegates are to **demonstrate**:

- 9.2.2. Sea survival techniques
 - (a) Safe entry into the water from a height
 - (b) H.E.L.P
 - (c) Individual swimming techniques
 - (d) Collective swimming techniques
 - (e) Collective techniques to prevent hypothermia
 - (f) Techniques to enhance chances of being spotted

ELEMENT 9.3 Emergency descent

Training staff is to **explain and demonstrate**:

- 9.3.1 Evacuation from WTG by descent into the water including:
 - (a) Pre-use inspection
 - (b) Correct fitting of harness
 - (c) Attachment
 - (d) Descent into water
 - (e) Inflation of lifejacket
 - (f) Detachment in the water

Delegates are to **demonstrate**:

- 9.3.2 Evacuation from WTG by descent into the water including:
 - (a) Pre-use inspection
 - (b) Correct fitting of harness
 - (c) Attachment
 - (d) Descent into water
 - (e) Inflation of lifejacket
 - (f) Detachment in the water

ELEMENT 9.4 Life raft

Training staff is to **explain and demonstrate**:

- 9.4.1 Inflation of a life raft
- 9.4.2 Methods of entering a life raft
- 9.4.3 Immediate and further actions in a life raft
- 9.4.4 The equipment in life rafts
- 9.4.5 Righting a capsized life raft

Delegates are to **demonstrate**:

- 9.4.5 Ability to enter a life raft
- 9.4.6 The ability to right a capsized life raft

ELEMENT 9.5 Helicopter rescue from water

Training staff is to **explain and demonstrate**:

- 9.5.1 The fitting of a helicopter lifting strop, subsequent lifting and (simulated) entry into a rescue helicopter including:
 - (a) Single lift.
 - (b) Body posture.
 - (c) Aircraft entry.

Delegates are to **demonstrate**:

- 9.5.2 Helicopter rescue from water as demonstrated by training staff

ELEMENT 9.6 Summary by exercise

Training staff is to **explain**:

- 9.6.1 Safety procedures and briefing of the exercise

Delegates are to **demonstrate the following in one cohesive scenario**:

- 9.6.2 Safe entry into the water from a height
- 9.6.3 Individual swimming techniques
- 9.6.4 Correct use of collective techniques to prevent hypothermia
- 9.6.5 Collective swimming techniques
- 9.6.6 Entry into a life raft
- 9.6.7 Immediate actions in a life raft
- 9.6.8 Recovery of a nearby casualty in the water
- 9.6.9 Helicopter hoist from life raft*

* Minimum 1 delegate must be hoisted from the life raft

Formal assessment of knowledge (see Section 1.7)

Lesson 10 Transfer practical

ELEMENT 10.1 Dock to vessel

Training staff is to **explain and demonstrate**:

10.1.1. Safe transfer of oneself and equipment from dock to vessel

Delegates are to **demonstrate**:

10.1.2. Safe transfer of oneself and equipment from dock to vessel

ELEMENT 10.2 Vessel to WTG

Training staff is to **explain and demonstrate**:

10.2.1. Safe transfer of oneself and equipment from vessel to WTG and back by the means of:

- (a) Twin lanyards.
- (b) Retractable arrester.

Delegates are to **demonstrate**:

10.2.2. Two Safe transfers of oneself and equipment from vessel to WTG and back:

- First transfer by the means of twin lanyards.
- Second transfer by the means of retractable arrester.

ELEMENT 10.3 Vessel to vessel

Training staff is to **explain and demonstrate**:

10.3.1. Safe transfer from vessel to vessel while making way.

Delegates are to **demonstrate**:

10.3.2. Safe transfer from vessel to vessel and back while making way

ELEMENT 10.4 Man over board

Training staff is to **explain and demonstrate**:

- 10.4.1. MOB procedures
- 10.4.2 Recovery from water by own assistance,
- 10.4.3 Assisted recovery from water
- 10.4.4 Recovery from water by means of cradle and rescue net

Delegates are to **demonstrate**:

- 10.4.5. MOB procedures
- 10.4.6. Recovery from water by own assistance,
- 10.4.7 Assisted recovery from water
- 10.4.8 Recovery from water by means of cradle and rescue net

Formal assessment of knowledge (see Section 1.7)

Lesson 11 Evaluation

ELEMENT 11.1 Summary

Training staff is to:

- 11.1.1 Sum up the module and give the delegates final feedback

ELEMENT 11.2 Evaluation

Delegates are to:

- 11.2.1 Make a written evaluation

Training staff is to:

- 11.2.2 Give necessary feedback on the written evaluations

ELEMENT 11.3 Certificates

Training staff is to:

- 11.3.1 Hand out certificates and ensure all delegates are registered with the correct personal information on the certificate.

Section 2 - Resources for the Basic Safety Training

2.1. Trainer/Delegate Ratio

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

Unit	Session	Ratio
Basic Sea survival	Theory	1:12



and transfer	Practical	3:12
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2.2. Facilities

It is important to ensure that the full range of facilities is made available to ensure that the delegates will get the most out of their training. The following facilities criteria must be adhered to.

Administration arrangements appropriate for the enrolment and certification of delegates and all aspects of the delivery of training must be in accordance with this standard.

Theory training area(s) must be designed to enable each delegate to see, hear and participate fully in the subject matter being taught.

Practical training areas must be designed to enable each delegate to individually, or as part of a team, see, hear and practice the following:

- (1) The donning of a survival suit
- (2) The donning of a permanent buoyancy life jacket including automatic lifejacket for transfer practice
- (3) Righting and boarding a marine life raft from the water
- (4) In-water procedures, including individual and group survival techniques, followed by rescue by one of the recognised methods available offshore
- (5) The use of a helicopter lifting strop and winching method to a simulated rescue aircraft
- (6) Stepping to and from a vessel* to WTG foundation mock scenario including boat landing, with ladder, platform, manual service crane or similar for the manual handling of equipment

* FRB or crew boat with an intended purpose for the number of persons on-board including instructors. The boat must be fitted with bow arrangements suited for transfer.
- (7) MOB and recovery (Secondary FRB and by means of recovery cradle and rescue net)

Note: All facilities must be maintained and where appropriate, inspected and tested in accordance with current national legislation and manufacturers recommendations.

Risk assessments must be conducted and documented for all training facilities.

The training provider must hold the required permits to operate the facilities.

2.3. Equipment

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

- (a) Rigid lifejackets
- (b) Inflatable lifejackets
- (c) Survival suits
- (d) Helmets
- (e) Inflatable life raft with equipment
- (f) Helicopter rescue sling
- (g) Cradle
- (h) Rescue net
- (i) Constant rate descender or single rope self-braking descender
- (j) Safety harnesses
- (k) Twin energy absorbing lanyards
- (l) Retractable fall arrester
- (m) PPE

In order to comply with national legislation and standards, the equipment supplied and used by staff and delegates must follow the appropriate guidelines i. e.:

Europe- EN

UK - BS

USA - ANSI

Canada - CSA

Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

Section 3 - Administration and Certification

3.1 Delegate Performance Assessment

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

Training providers must have a documented procedure in place for dealing with persons not meeting the stated learning outcomes.

3.2 Validation

The maximum interval between successful completions of BST Module Sea Survival is **48 months**.

3.3 Certification

Training providers are responsible for issuing a certificate directly to the delegate upon completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed according to the learning outcomes and must contain the following:

- (a) Training Provider's name.
- (b) Full GWO course title stating that it is GWO approved.
- (c) Delegate's name and date of birth.
- (d) Course dates.
- (e) Expiry date.
- (f) Training Provider's signature.

3.4 Records

The training provider must keep a register of the delegates who have completed the BST Module Sea Survival.

On request from GWO or any of the members of GWO, the training provider must be able to verify the training and competence records of any specific delegate by name and date of birth.

3.5 Measures

The trainer keeps the control measures form until the completion/evaluation of the module

If a delegate fails to meet the demands, they must attend a new BST Module Sea Survival.

3.6 Control measures

Find control measures form on next page.

Control measures

Name: _____

Date of birth (dd-mm-yyyy): _____

Course: BST Module Sea Survival

Date: _____

Training provider: _____

Control measures	Non-conformity of control measures			0-2 passed/ 3 failed	Instructor Remarks
Paying attention					
Following directions					
Participation					
Recognise the need for the appropriate manual handling techniques					
Demonstrate correct and safe manual handling in course exercises					
Time: (full hours and exercise time)					
Total remarks (0-9 passed class) (10-18 failed class)					

Instructor: _____

Pass

Fail

The control measures form is an evaluation tool for the instructors to measure the number of non-conformity in regard to safety, competency, or course involvement It can be used as a progressive



evaluation tool to discuss the performance of a delegate in guiding them to success and it also serves as supporting documentation in the event that a delegate fails the module.