



**GLOBAL WIND ORGANISATION
STANDARD**

**Basic Safety Training (BST)
(Onshore/Offshore)**

**Version 6
12 March, 2014**

Change Log

Amendments & Dates	Version	Changes	Approved by & Dates
12.03.2014	6	<ul style="list-style-type: none"> • <u>Appendix and Change Log</u> • Appendix removed. Change Log moved from the end to the beginning of this document after the title page. <p><u>Working at Heights Module</u></p> <ul style="list-style-type: none"> • 1.1: Length of Working at Heights course corrected from 8 hours to 16 hours. • 1.6: Lesson 1 Introduction. The word “Refresher” removed. • 2.6: Equipment. The version years are removed from the safety/equipment standards. The reason for this is that there are many standards that are frequently updated. Updating all of these standards with their new versions will require lots of work. If no years are mentioned, the newest version of the equipment standard will always prevail. <p><u>Entire GWO Basic Safety Training Standard Document (All Modules)</u></p> <ul style="list-style-type: none"> • Small corrections to spelling, grammar, styles and tables (no meanings of sentences have been changed) 	GWO SC 27-03-2014
21.11.2013	5	<p><u>Entire GWO Basic Safety Training Standard Document (All Modules)</u></p> <ul style="list-style-type: none"> • Delegate prerequisites corrected for each Module (Section 1.3) • Physical demands corrected for each Module (Section 1.4) 	

04.11.2013	4	<p><u>Entire GWO Basic Safety Training Standard Document (All Modules)</u></p> <ul style="list-style-type: none"> • Spelling, grammar corrected (no meanings of sentences have been changed), format corrected • Delegate prerequisites updated for each Module (Section 1.3) • Physical Demands updated for each Module (Section 1.4) • Added Appendix 1A to each Module (GWO's suggestion for Medical Self-Assessment) <p><u>Working at Heights Module</u></p> <ul style="list-style-type: none"> • Information about Certification (EN, ANSI, etc.) has been added for equipment list for module (Section 2.3, p. 144) 	
17.06.2013	3	<p><u>Entire GWO Basic Safety Training Standard Document</u></p> <ul style="list-style-type: none"> • Draft of Version 3 finalised • All sections updated with current information • Small changes in document layout, writing corrections included 	
22.01.2013	2	<p><u>Entire GWO Standard Document</u></p> <ul style="list-style-type: none"> • Date of birth removed from GWO course certificates • Change log is now in an Appendix at the end of the GWO Standard document • Change in requirements for medical certificates for GWO courses. Now, with exception of Sea Survival, Delegates may participate in a course as long as they present a physician's medical certificate prior to the end of the course 	

		<ul style="list-style-type: none"> • Change in document layout and some language, grammar, spelling and writing corrections 	
15.07.2012	1	<p><u>Module First Aid</u></p> <ul style="list-style-type: none"> • 1.7 Delegate performance assessment The section has been rewritten • Element 1.6: Motivation: The Chain survival changes to Chain of survival • Timetable, BST Module First Aid The total time is 790 min. and is changed to 800 min. 10 min. are added to scenario-based training • 1.7 Delegate performance assessment The section has been rewritten • 8.13 First Aid scenarios Added V Electricity accidents minor/serious. • Control Measures have been corrected • Records Added min. 5 years 	GWO SC 30-07-2012
15.07.2012	1	<p><u>Module Manual Handling</u></p> <ul style="list-style-type: none"> • Records It has been added min. 5 years 	GWO SC 30-07-2012
15.07.2012	1	<p><u>Module Fire Awareness</u></p> <ul style="list-style-type: none"> • 1.8 Timetable 10 min. have been added to practise and scenario-based training. Total time is now 210 min. • Control Measures have been corrected • Records Added min. 5 years 	GWO SC 30-07-2012

15.07.2012	1	<p><u>Module Working at Heights</u></p> <ul style="list-style-type: none"> • 1.7 Delegate performance assessment The section has been rewritten • Equipment Harness according to EN361/358 or EN 813/361/358 Slings EN566 according to minimum 795-B Anchor points according to EN795A • Records Added min. 5 years Karabiner EN362 has to have an automatic locking system • Control Measures have been corrected 	GWO SC 30-07-2012
15.07.2012	1	<p><u>Module Sea Survival</u></p> <ul style="list-style-type: none"> • 1.7 Delegate performance assessment The section has been rewritten • Records Added min. 5 years • Control Measures have been corrected 	GWO SC 30-07-2012

Foreword

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

This Standard has been developed in response to the demand for recognisable Basic Safety Training (BST) in the industry. The development of this Standard has been prepared in co-operation between the members of GWO. This work is based on risk assessments and factual incident/accident statistics within the industry pertaining to the installation, service and maintenance of wind turbine generators.

The objective of this Standard is to develop common industry training and best practise Standards for health and safety as a vital and necessary way forward to reducing risks for personnel in the wind industry working on site and to reducing environmental risks across Europe and the globe.

This Standard describes the requirements for Basic Safety Training in the wind industry that are recommended by GWO. Where national legislation sets higher requirements for the training, the Training Provider shall incorporate these requirements 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.. Additional training may be required due to company or country specific requirements.

GWO recommends a company specific Basic Safety Introduction and Technical Safety Training as additional training.

Editorial and Approval

The final editorial and approval of this standard has been conducted by the GWO Steering Committee.

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 Generators, sub stations, etc.) shall complete Basic Safety Training courses relevant for their assignments. All work shall 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 this certificate as possessing the required knowledge to stop an unsafe work situation.

Table of Contents

CHANGE LOG	2
FOREWORD	6
EDITORIAL AND APPROVAL	7
ACKNOWLEDGEMENT	7
LIST OF ABBREVIATIONS	14
INTRODUCTION	15
TARGET GROUP	15
OVERVIEW	15
DURATION OF BST MODULES	16
LEGAL REQUIREMENTS	16
VALIDITY PERIOD	16
DELEGATE PREREQUISITES FOR THE BST	17
PHYSICAL DEMANDS	17
AIMS AND OBJECTIVES	18
RESOURCES FOR THE BST MODULE	18
STAFF	18
FACILITIES	18
THEORY TRAINING FACILITIES	19
PRACTICAL TRAINING FACILITIES	19
EQUIPMENT	19
ADMINISTRATION AND CERTIFICATION	19
ADMINISTRATIVE ARRANGEMENTS	19
DELEGATE PERFORMANCE ASSESSMENT	20
CERTIFICATION	20
RECORDS	20
BST MODULES	20
FIRST AID	22
FOREWORD	23

EDITORIAL AND APPROVAL	24
ACKNOWLEDGEMENT	24
TABLE OF CONTENTS	25
LIST OF ABBREVIATIONS.....	27
INTRODUCTION.....	28
SECTION 1 - THE BST FIRST AID MODULE	28
1.1 DURATION OF THE BST FIRST AID MODULE.....	28
1.2 TARGET GROUP	28
1.3 DELEGATE PREREQUISITES FOR THE BST FIRST AID MODULE	29
1.4 PHYSICAL DEMANDS OF THE BST FIRST AID MODULE.....	29
1.5 AIMS AND OBJECTIVES OF THE BST FIRST AID MODULE	29
1.6 LEARNING OUTCOMES OF THE BST FIRST AID MODULE	30
1.7 DELEGATE PERFORMANCE ASSESSMENT.....	34
BST FIRST AID MODULE TIME TABLE	35
1.9 ELEMENTS, BST FIRST AID MODULE.....	37
SECTION 2 - RESOURCES FOR BST FIRST AID.....	50
2.1 STAFF	50
2.2 TRAINER/DELEGATE RATIO	50
2.3 FACILITIES.....	51
2.4 THEORY TRAINING FACILITIES	51
2.5 PRACTICAL TRAINING FACILITIES.....	51
2.6 EQUIPMENT	51
SECTION 3 - ADMINISTRATION AND CERTIFICATION	52
3.1 DELEGATE PERFORMANCE ASSESSMENT	52
3.2 VALIDITY	52
3.3 CERTIFICATION	52
3.4 RECORDS.....	53
3.5 MEASURES.....	53
3.6 CONTROL MEASURES.....	53
CONTROL MEASURES	54
MANUAL HANDLING	57
EDITORIAL AND APPROVAL	59
ACKNOWLEDGEMENT	59

TABLE OF CONTENTS	60
LIST OF ABBREVIATIONS	62
INTRODUCTION	63
SECTION 1 - THE BST MANUAL HANDLING MODULE	63
1.1 DURATION OF THE BST MANUAL HANDLING MODULE	63
1.2 TARGET GROUP	64
1.3 DELEGATE PREREQUISITES FOR THE BST MANUAL HANDLING MODULE	64
1.4 PHYSICAL DEMANDS OF THE BST MANUAL HANDLING MODULE	64
1.5 AIMS AND OBJECTIVES OF THE BST MANUAL HANDLING MODULE	64
1.6 LEARNING OUTCOMES OF THE BST MANUAL HANDLING MODULE	65
1.7 DELEGATE PERFORMANCE ASSESSMENT	69
BST MANUAL HANDLING MODULE TIME TABLE	70
1.9 ELEMENTS, BST MANUAL HANDLING MODULE	71
SECTION 2 - RESOURCES FOR BST MANUAL HANDLING	78
2.1 STAFF	78
2.2 TRAINER/DELEGATE RATIO	78
2.3 FACILITIES	79
2.4 THEORY TRAINING FACILITIES	79
2.5 PRACTICAL TRAINING FACILITIES	79
2.6 EQUIPMENT	79
SECTION 3 - ADMINISTRATION AND CERTIFICATION	80
3.1 DELEGATE PERFORMANCE ASSESSMENT	80
3.2 VALIDITY	80
3.3 CERTIFICATION	80
3.4 RECORDS	81
3.5 MEASURES	81
3.6 CONTROL MEASURES	81
CONTROL MEASURES	82
FIRE AWARENESS	85
EDITORIAL AND APPROVAL	87
ACKNOWLEDGEMENT	87
TABLE OF CONTENTS	88
LIST OF ABBREVIATIONS	90

INTRODUCTION.....	91
SECTION 1 - THE BST FIRE AWARENESS	91
1.1 DURATION OF THE BST FIRE AWARENESS MODULE	91
1.2 TARGET GROUP	92
1.3 DELEGATE PREREQUISITES FOR THE BST FIRE AWARENESS MODULE	92
1.4 PHYSICAL DEMANDS OF THE BST FIRE AWARENESS MODULE	92
1.5 AIMS AND OBJECTIVES OF THE BST FIRE AWARENESS MODULE	92
1.6 LEARNING OUTCOMES OF THE BST FIRE AWARENESS MODULE	93
1.7 DELEGATE PERFORMANCE ASSESSMENT.....	96
BST MODULE FIRE AWARENESS TIME TABLE	97
1.9 ELEMENTS, BST FIRE AWARENESS MODULE	99
SECTION 2 - RESOURCES FOR THE BASIC SAFETY TRAINING	106
2.1 STAFF	106
2.2 TRAINER/DELEGATE RATIO	106
2.3 FACILITIES	107
2.4 THEORY TRAINING FACILITIES	107
2.5 PRACTICAL TRAINING FACILITIES	107
2.6 EQUIPMENT	107
SECTION 3 - ADMINISTRATION AND CERTIFICATION	108
3.1 DELEGATE PERFORMANCE ASSESSMENT	108
3.2 VALIDITY	108
3.3 CERTIFICATION	108
3.4 RECORDS.....	109
3.5 MEASURES.....	109
3.6 CONTROL MEASURES	109
CONTROL MEASURES	110
WORKING AT HEIGHTS	113
FOREWORD.....	114
EDITORIAL AND APPROVAL	115
ACKNOWLEDGEMENT	115
TABLE OF CONTENTS	116
LIST OF ABBREVIATIONS.....	119
INTRODUCTION.....	120

SECTION 1 - THE BST WORKING AT HEIGHTS MODULE	120
1.1 DURATION OF THE BST WORKING AT HEIGHTS MODULE	120
1.2 TARGET GROUP	121
1.3 DELEGATE PREREQUISITES FOR THE BST WORKING AT HEIGHTS MODULE	121
1.4 PHYSICAL DEMANDS OF THE BST WORKING AT HEIGHTS MODULE	121
1.5 AIMS AND OBJECTIVES OF THE BST WORKING AT HEIGHTS MODULE	121
1.6 LEARNING OUTCOMES OF THE BST WORKING AT HEIGHTS MODULE	122
1.7 DELEGATE PERFORMANCE ASSESSMENT	128
BST MODULE WORKING AT HEIGHTS MODULE TIME TABLE	129
EMERGENCY PROCEDURE	130
RESCUE DEVICE	130
EVALUATION	131
1.9 ELEMENTS, BST WORKING AT HEIGHTS MODULE	131
SECTION 2 - RESOURCES FOR BST WORKING AT HEIGHTS.....	145
2.1 STAFF	145
2.2 TRAINER/DELEGATE RATIO	145
2.3 FACILITIES	146
2.4 THEORY TRAINING FACILITIES	146
2.5 PRACTICAL TRAINING FACILITIES	146
2.6 EQUIPMENT	146
SECTION 3 - ADMINISTRATION AND CERTIFICATION	148
3.1 DELEGATE PERFORMANCE ASSESSMENT	148
3.2 VALIDITY	149
3.3 CERTIFICATION	149
3.4 RECORDS	149
3.5 MEASURES.....	150
3.6 CONTROL MEASURES.....	150
CONTROL MEASURES	151
SEA SURVIVAL	154
FOREWORD.....	155
EDITORIAL AND APPROVAL	156
ACKNOWLEDGEMENT	156
TABLE OF CONTENTS	157
LIST OF ABBREVIATIONS.....	159



INTRODUCTION.....	160
SECTION 1 - THE BST SEA SURVIVAL MODULE	160
1.1 DURATION OF THE BST SEA SURVIVAL MODULE.....	160
1.2 TARGET GROUP	160
1.3 DELEGATE PREREQUISITES FOR THE BST SEA SURVIVAL MODULE	161
1.4 PHYSICAL DEMANDS OF THE BST SEA SURVIVAL MODULE	161
1.5 AIMS AND OBJECTIVES OF THE BST SEA SURVIVAL MODULE	161
1.6 LEARNING OUTCOMES OF THE BST SEA SURVIVAL MODULE.....	162
1.7 DELEGATE PERFORMANCE ASSESSMENT	166
BST SEA SURVIVAL MODULE TIME TABLE.....	168
1.9 ELEMENTS, BST MODULE SEA SURVIVAL	169
9.4.5 ABILITY TO ENTER A LIFE RAFT	175
9.5.2 HELICOPTER RESCUE FROM WATER AS DEMONSTRATED BY TRAINING STAFF.....	175
SECTION 2 - RESOURCES FOR BST SEA SURVIVAL.....	178
2.1 STAFF	178
2.2 TRAINER/DELEGATE RATIO	179
2.3 FACILITIES	179
2.4 THEORY TRAINING FACILITIES	179
2.5 PRACTICAL TRAINING FACILITIES	179
2.3 EQUIPMENT	179
SECTION 3 - ADMINISTRATION AND CERTIFICATION	180
3.1 DELEGATE PERFORMANCE ASSESSMENT	180
3.2 VALIDITY	180
3.3 CERTIFICATION	181
3.4 RECORDS.....	181
3.5 MEASURES.....	181
3.6 CONTROL MEASURES.....	181
CONTROL MEASURES	182

List of Abbreviations

GWO	Global Wind Organisation
BST	Basic Safety Training
WTG	Wind Turbine Generator

Introduction

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

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

Target group

Personnel working in the wind industry or related fields needing to obtain their GWO BST certificates.

Overview

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

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

Duration of BST Modules

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

Legal requirements

The Training Provider shall identify whether national legislation sets other requirements for Basic Safety Training. If so, the Training Provider shall incorporate these identified requirements in the training.

Validity period

The Basic Safety Training Modules are valid for the period stated in the table below. Certificates shall be renewed before the end of a given validity period. The validity period is found by adding the number of months stated in the table below to the issue date of the certificate.

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

Delegate prerequisites for the BST

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

Training providers shall have a procedure that requires Delegates to sign a statement (see Appendix 1A, Suggestion for Medical Statement from GWO) stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under influence of any narcotic substance or alcohol.

Delegates' signatures shall be collected prior to the start of the safety training course.

Physical demands

BST Modules may potentially be physically demanding.

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

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

Aims and objectives

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

Resources for the BST Module

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

Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation.

Training Staff shall be:

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

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

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

Facilities

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



Theory training facilities

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

Practical training facilities

Facilities shall be designed to enable each Delegate to individually and/ or as part of a team, see, hear and practise the taught subject matter.

Note:

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

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

The Training Provider shall hold the required permits to operate the facilities.

Equipment

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

The equipment shall be maintained, inspected and tested in accordance with current national legislation and manufacturers' recommendations.

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

The Training Provider shall hold the required permits to operate relevant equipment.

Administration and certification

Administrative arrangements

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

Delegate performance assessment

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

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

Certification

Training Providers are responsible for issuing a certificate directly to the Delegate upon completion of the training programme and to the sponsoring company where required. Each certificate shall indicate that the Delegate has been assessed according to the learning outcomes and shall contain the following:

- (1) Training Provider's name
- (2) Full BST Module title stating the training module is GWO approved
- (3) Type of equipment used in the course and maximum training height (BST Working at Heights Module only)
- (4) Course dates
- (5) Expiry date
- (6) Training Provider's signature

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

Records

The Training Provider shall keep a record of Delegates that have completed the GWO training.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any specific personnel by name.

BST Modules

The requirements for each of the Basic Safety Training Modules are outlined in the following chapters.

Title:

Medical Self-Assessment

Issued by:



Unrestricted

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

This signed Medical Self-Assessment must be returned to the Training Provider's Representative/Responsible prior to the start of the training course.

Full name as stated in passport	Company
---------------------------------	---------

The following conditions could pose a risk, when you actively participate in GWO training
Asthma or other respiratory disorders
Epilepsy, blackouts or other fits
Angina or other heart complaints
Vertigo or inner ear problems (difficulty with balance)
Claustrophobia/Acrophobia (fear of enclosed area/height)
Blood pressure disorder
Diabetes
Pacemaker or implanted defibrillator
Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility
Known allergies (E.g. bee, wasps or spider stings / bites)
Recent surgery
Any other medical condition or medication dependency that could affect climbing or physical impact of climbing

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

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training.

I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training.

I hereby agree: should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Signature _____ **Date** _____



GLOBAL WIND ORGANISATION STANDARD

Basic Safety Training (BST) (Onshore/Offshore)

FIRST AID

**Version 6
12 March, 2014**

Foreword

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

This Standard has been developed in response to the demand for recognisable Basic Safety Training (BST) in the industry. The development of this Standard has been prepared in co-operation between the members of GWO. This work is based on risk assessments and factual incident/accident statistics within the industry pertaining to the installation, service and maintenance of wind turbine generators.

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Table of Contents

FIRST AID	22
FOREWORD.....	23
EDITORIAL AND APPROVAL	24
ACKNOWLEDGEMENT	24
TABLE OF CONTENTS	25
LIST OF ABBREVIATIONS.....	27
INTRODUCTION.....	28
SECTION 1 - THE BST FIRST AID MODULE	28
1.1 DURATION OF THE BST FIRST AID MODULE.....	28
1.2 TARGET GROUP	28
1.3 DELEGATE PREREQUISITES FOR THE BST FIRST AID MODULE	29
1.4 PHYSICAL DEMANDS OF THE BST FIRST AID MODULE.....	29
1.5 AIMS AND OBJECTIVES OF THE BST FIRST AID MODULE	29
1.6 LEARNING OUTCOMES OF THE BST FIRST AID MODULE	30
<i>Lesson 1 Introduction.....</i>	<i>30</i>
<i>Lesson 2 Legislation/Risks/Hazards.....</i>	<i>31</i>
<i>Lesson 3 Anatomy.....</i>	<i>31</i>
<i>Lesson 4 Management of an incident.....</i>	<i>32</i>
<i>Lesson 5 Lifesaving First Aid Primary Survey A - B - C.....</i>	<i>32</i>
<i>Lesson 6 AED.....</i>	<i>33</i>
<i>Lesson 7 Ordinary First Aid</i>	<i>33</i>
<i>Lesson 8 Scenario-based training.....</i>	<i>33</i>
<i>Lesson 9 Evaluation.....</i>	<i>34</i>
1.7 DELEGATE PERFORMANCE ASSESSMENT.....	34
BST FIRST AID MODULE TIME TABLE	35
1.9 ELEMENTS, BST FIRST AID MODULE.....	37
<i>Lesson 1 Introduction.....</i>	<i>37</i>
ELEMENT 1.1 Safety instructions and emergency procedures.....	37
ELEMENT 1.2 Facilities	37
ELEMENT 1.3 Introduction	37
ELEMENT 1.4 Scope and main objectives.....	37
ELEMENT 1.5 On-going assessments.....	38
ELEMENT 1.6 Motivation	38
<i>Lesson 2 Legislation/Risks/Hazards.....</i>	<i>38</i>

ELEMENT 2.1	Global legislation.....	38
ELEMENT 2.2	National legislation	38
ELEMENT 2.3	First Aid Guidelines	38
ELEMENT 2.4	Risk and Hazards	39
Lesson 3	Anatomy.....	39
ELEMENT 3.1	Life conditions for the human body.....	39
ELEMENT 3.2	Structure, functions and signs - the human body	39
ELEMENT 3.3	Serious and minor injuries - signs, symptoms and function.....	40
ELEMENT 3.4	Serious and minor illness - signs, symptoms and function.....	40
ELEMENT 3.5	Use of Anatomy and First Aid in emergency situations	41
ELEMENT 3.6	Understanding of personal hygiene	41
Lesson 4	Management of an incident.....	41
ELEMENT 4.1	Management of an incident.....	41
ELEMENT 4.2	Safety awareness in an emergency situation.....	42
ELEMENT 4.3	Primary and secondary incidents	42
ELEMENT 4.4	Emergency Rescue Teams	42
Lesson 5	Lifesaving First Aid A - B - C.....	43
ELEMENT 5.1	Primary Survey A - B - C.....	43
ELEMENT 5.2	Unresponsive	43
ELEMENT 5.3	Unresponsive, not breathing.....	43
ELEMENT 5.4	CPR.....	44
ELEMENT 5.5	Obstruction of airways.....	44
ELEMENT 5.6	Bleeding, internal and external	44
ELEMENT 5.7	Shock.....	45
Lesson 6	AED.....	46
ELEMENT 6.1	Technical specifications of an AED	46
ELEMENT 6.2	AED safety procedures	46
ELEMENT 6.3	Correct use of an AED	46
Lesson 7	Ordinary First Aid	46
ELEMENT 7.1	First Aid - minor incidents	46
ELEMENT 7.2	Minor to serious incidents	47
ELEMENT 7.3	Psychological First Aid.....	47
Lesson 8	Scenario - based training.....	47
ELEMENT 8.1	Practise First Aid techniques	47
Lesson 9	Evaluation.....	49
ELEMENT 9.1	Summary	49
ELEMENT 9.2	Evaluation	49
ELEMENT 9.3	Certificates.....	49

SECTION 2 - RESOURCES FOR BST FIRST AID..... 50

2.1	STAFF	50
2.2	TRAINER/DELEGATE RATIO	50
2.3	FACILITIES	51
2.4	THEORY TRAINING FACILITIES	51
2.5	PRACTICAL TRAINING FACILITIES	51
2.6	EQUIPMENT	51

SECTION 3 - ADMINISTRATION AND CERTIFICATION 52



3.1	DELEGATE PERFORMANCE ASSESSMENT	52
3.2	VALIDITY	52
3.3	CERTIFICATION	52
3.4	RECORDS	53
3.5	MEASURES.....	53
3.6	CONTROL MEASURES.....	53
	CONTROL MEASURES	54

List of abbreviations

AED	Automatic External Defibrillator
AHA	American Heart Association
BST	Basic Safety Training
CPR	Cardiopulmonary Resuscitation
CO₂	Carbon Dioxide
ERC	European Resuscitation Council
GWO	Global Wind Organisation
WTG	Wind Turbine Generator

Introduction

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

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

Section 1 - The BST First Aid Module

1.1 Duration of the BST First Aid Module

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

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

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

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

1.2 Target group

Personnel working in the wind industry or related fields needing to obtain their GWO BST First Aid Module certificates.



1.3 Delegate prerequisites for the BST First Aid Module

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

Training providers shall have a procedure that requires Delegates to sign a statement (see Appendix 1A, Suggestion for Medical Statement from GWO) stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under influence of any narcotic substance or alcohol.

Delegates' signatures shall be collected prior to the start of the safety training course.

1.4 Physical demands of the BST First Aid Module

BST Modules may potentially be physically demanding.

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

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

1.5 Aims and objectives of the BST First Aid Module

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



The BST First Aid Module shall ensure that:

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

1.6 Learning outcomes of the BST First Aid Module

The learning outcomes specified for the First Aid Module are:

Lesson 1 Introduction

15 min.

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



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

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

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

To successfully complete this BST Module, Delegates shall 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 AHA

Lesson 3 Anatomy

50 min.

The aim of this lesson is to give the Delegates knowledge and skills regarding the human body. Delegates will be 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 BST Module, Delegates shall 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 Management of an incident

50 min.

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

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

- (1) Knowledge and skills to manage an incident
- (2) Knowledge and skills for safety awareness in an emergency situation during both primary and secondary incidents
- (3) Knowledge and skills for Primary and Secondary First Aid
- (4) Understanding of support from Emergency Rescue Teams in WTG environments

Lesson 5 Lifesaving First Aid Primary Survey A - B - C

200 min.

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

To successfully complete this BST Module, Delegates shall 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 Cardiopulmonary Resuscitation (CPR)
- (5) Correct First Aid for obstruction of airways
- (6) Correct First Aid for bleeding - external and internal
- (7) Correct First Aid for shock

Lesson 6 AED

100 min.

The aim of this lesson is to give the Delegates the knowledge and skills to be able to use an Automatic External Defibrillator (AED).

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

- (1) 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

60 min.

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

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

- (1) 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

285 min.

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

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

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

Lesson 9 Evaluation

15 min.

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

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

- (1) Active participation in the evaluation

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

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

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

- (1) Unconscious
- (2) Requires CPR
- (3) A scenario as detailed in Section 1.9 - Element 8.1.3.

The formal evaluation of knowledge of above scenarios shall be in accordance with the Practical Assessment Measures in section - 3.5.

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

BST First Aid Module Time Table

The order in which the elements of this BST 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 Scope and main learning objectives	
		1.5 On-going assessment (Control Measures)	
		1.6 Motivation	
2	Legislation/Risks/Hazards	2.1 Global legislation	
		2.2 National legislation	
		2.3 First Aid guidelines	
		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	
		4.4 Emergency Rescue Teams	
5	Lifesaving First Aid (A - B - C)	5.1 Primary Survey A - B - C	
		5.2 Unresponsive	
		5.3 Unresponsive, not breathing	

		5.4 5.5 5.6 5.7	CPR Obstruction of airways Bleeding, internal and external Shock	
			TOTAL	200 min.
6	AED	6.1 6.2 6.3	Theory and technical specifications of an AED AED safety procedures Correct use of an AED	
			TOTAL	100 min.
7	Ordinary First Aid	7.1 7.2 7.3	First Aid - minor incidents Minor to serious incidents Psychological First Aid	
			TOTAL	60 min.
8	Scenario-based training	8.1	Practise First Aid techniques	
			TOTAL	285 min.
9	Evaluation	9.1 9.2 9.3	Summary Evaluation Certificates	
			TOTAL	15 min.
GRAND TOTAL				800 min.

1.9 Elements, BST First Aid Module

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

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

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

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

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give**:

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

Training Staff shall **explain**:

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

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain**:

- 1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain**:

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

ELEMENT 1.6 Motivation

Training Staff shall **explain**:

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

Lesson 2 Legislation/Risks/Hazards

ELEMENT 2.1 Global legislation

Training Staff shall **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 shall **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 shall **explain**:

- 2.3.1. Different guidelines from ERC and AHA

ELEMENT 2.4 Risk and Hazards

Training Staff shall **lead the group discussion on:**

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

Lesson 3 Anatomy

ELEMENT 3.1 Life conditions for the human body

Training Staff shall **explain:**

- 3.1.1 Normal life conditions for the human body
- (1) Human cells and life conditions
 - (2) Cells and oxygen (O₂)
 - (3) Cells and carbon dioxide (CO₂) toxin
 - (4) Vital organs and their requirements

ELEMENT 3.2 Structure, functions and signs - the human body

Training Staff shall **explain and demonstrate:**

- 3.2.1 Vital systems of the human body
- (1) Nervous system
 - (2) Respiratory system
 - (3) Circulatory system
 - (4) Other systems
- 3.2.2 Nervous system
- (1) Anatomy of the nervous system
 - (2) Structure, functions and normal signs
 - (3) Threats to the nervous system
- 3.2.3 Respiratory system
- (1) Anatomy of the respiratory system
 - (2) Structure, functions and normal signs

(3) Threats to the respiratory system

- 3.2.4 Circulatory system
- (1) Anatomy of the circulatory system
 - (2) Structure, functions and normal signs
 - (3) Threats to the circulatory system

- 3.2.5 Other systems and vital organs of the human body
- (1) Anatomy of the vital organs
 - (2) Structure and functions
 - (3) Threats to the vital organs

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

Training Staff shall **explain and demonstrate**:

- 3.3.1 Serious injuries
- (1) Nervous system
 - (2) Respiratory system
 - (3) Circulatory system
 - (4) Other systems

- 3.3.2 Minor injuries
- (1) Nervous system
 - (2) Respiratory system
 - (3) Circulatory system
 - (4) Other systems

ELEMENT 3.4 Serious and minor illness - signs, symptoms and function

Training Staff shall **explain and demonstrate**:

- 3.4.1 Serious illness
- (1) Nervous system
 - (2) Respiratory system
 - (3) Circulatory system
 - (4) Other systems



- 3.4.2 Minor illness
- (1) Nervous system
 - (2) Respiratory system
 - (3) Circulatory system
 - (4) Other systems

ELEMENT 3.5 Use of Anatomy and First Aid in emergency situations

Training Staff shall **explain and demonstrate**:

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

ELEMENT 3.6 Understanding of personal hygiene

Training Staff shall **explain**:

- 3.6.1 Personal hygiene
- (1) As a First Aider
 - (2) Protection and use of barriers in emergency situations

Lesson 4 Management of an incident

ELEMENT 4.1 Management of an incident

Training Staff shall **explain and demonstrate**:

- 4.1.1 Managing an incident
- (1) How to follow an efficient and correct First Aid structure
 - (2) Analysis and management of an incident
 - (3) Different emergency situations in the wind industry
 - (4) Call for help - challenges onshore
 - (5) Call for help - challenges offshore

Delegates shall **explain and demonstrate**:



- 4.1.2 Managing an incident
- (1) How to follow an efficient and correct First Aid structure
 - (2) Analysis and management of an incident
 - (3) Different emergency situations in the wind industry
 - (4) Call for help - challenges onshore
 - (5) Call for help - challenges offshore

ELEMENT 4.2 Safety awareness in an emergency situation

Training Staff shall **explain and demonstrate**:

- 4.2.1 Safety in an emergency situation
- (1) Appropriate safety behaviour and awareness of hazards as a First Aider in a WTG environment
 - (2) Safety for all persons involved in an incident
 - (3) Moving or not moving a casualty

Delegates shall **explain and demonstrate**:

- 4.2.2 Moving a casualty
- (1) Moving a casualty with two First Aiders
 - (2) Moving a casualty alone

ELEMENT 4.3 Primary and secondary incidents

Training Staff shall **explain and demonstrate**:

- 4.3.1 Primary and secondary incidents
- (1) Primary incidents using a correct First Aid structure
 - (2) Secondary incidents using a correct First Aid structure
 - (3) Assessments

ELEMENT 4.4 Emergency Rescue Teams

Training Staff shall **explain**:

- 4.4.1 Emergency Rescue Teams
- (1) Functions of Emergency Rescue Teams
 - (2) Co-operation with Emergency Rescue Teams
 - (3) Challenges for Emergency Rescue Team on site



Lesson 5 Lifesaving First Aid A - B - C

ELEMENT 5.1 Primary Survey A - B - C

Delegates shall **explain and demonstrate**:

- 5.1.1 How to use Primary Survey (A - B - C) in an incident
- (1) Airway
 - (2) Breathing
 - (3) Circulation

ELEMENT 5.2 Unresponsive

Training Staff shall **explain and demonstrate**:

- 5.2.1 First Aid to an unresponsive casualty
- (1) Reasons for being unresponsive
 - (2) Threats
 - (3) Primary Survey (A - B - C)
 - (4) Recovery position - single First Aider
 - (5) Recovery position - two First Aiders
 - (6) First Aid equipment

Delegates shall **practise and demonstrate**:

- 5.2.2 First Aid to an unresponsive casualty
- (1) Threats
 - (2) Primary Survey (A - B - C)
 - (3) Recovery position - single First Aider
 - (4) Recovery position two First Aiders
 - (5) Use of First Aid equipment

ELEMENT 5.3 Unresponsive, not breathing

Training Staff shall **explain and demonstrate**:

- 5.3.1 Unresponsive and not breathing
- (1) Reasons for being unresponsive and not breathing
 - (2) Threats



- (3) Primary Survey (A - B - C)
- (4) Performing CPR on adults - single First Aider
- (5) Performing CPR on adults - two First Aiders
- (6) Performing CPR on children
- (7) Use of First Aid equipment

ELEMENT 5.4 CPR

Delegates shall **practise and demonstrate**:

- 5.4.1 Unresponsive and not breathing
- (1) Primary Survey (A - B - C)
 - (2) Performing CPR on adults
 - (3) Performing CPR on children
 - (4) Use of first equipment

ELEMENT 5.5 Obstruction of airways

Training Staff shall **explain and demonstrate**:

- 5.5.1 Obstruction of airways
- (1) Reasons for obstruction of airways
 - (2) Threats
 - (3) Primary Survey (A - B - C)
 - (4) Adults and children

Delegates shall **practise and demonstrate**:

- 5.5.2 First Aid in case of obstruction of airways
- (1) Primary Survey (A - B - C)
 - (2) Adults
 - (3) Children

ELEMENT 5.6 Bleeding, internal and external

Training Staff shall **explain and demonstrate**:

- 5.6.1 Bleeding, external
- (1) Reasons for external bleeding
 - (2) Threats
 - (3) Primary Survey (A - B - C)



- (4) Use of First Aid equipment
- (5) Use of other equipment

Delegates shall **practise and demonstrate:**

- 5.6.2 First Aid when a casualty is bleeding externally
- (1) Primary Survey (A - B - C)
 - (2) Use of First Aid equipment
 - (3) Use of other equipment

Training Staff shall **explain and demonstrate:**

- 5.6.3 Bleeding, internal
- (1) Reasons for internal bleeding
 - (2) Threats
 - (3) Primary Survey (A - B - C)
 - (4) Use of First Aid equipment

Delegates shall **practise and demonstrate:**

- 5.6.4 First Aid when a casualty is bleeding internally
- (1) Primary Survey (A - B - C)
 - (2) Use of First Aid equipment

ELEMENT 5.7 Shock

Training Staff shall **explain and demonstrate:**

- 5.7.1 Shock
- (1) Reasons for shock
 - (2) Types of shock
 - (3) Threats
 - (4) Primary Survey (A - B - C)
 - (5) Use of First Aid equipment
 - (6) Physiological First Aid

Delegates shall **practise and demonstrate:**

- 5.7.2 First Aid to Shock
- (1) First Aid Primary Survey (A - B - C)
 - (2) Use of First Aid equipment



(3) Physiological First Aid

Lesson 6 AED

ELEMENT 6.1 Technical specifications of an AED

Training Staff shall **explain and demonstrate**:

6.1.1 Theory and technical specifications of an AED

ELEMENT 6.2 AED safety procedures

Training Staff shall **explain and demonstrate**:

6.2.1 AED safety procedures

ELEMENT 6.3 Correct use of an AED

Training Staff shall **explain and demonstrate**:

6.3.1 Correct use of an AED
(1) Single First Aider
(2) Two First Aiders

Delegates shall **practise and demonstrate**:

6.3.2 Correct use of an AED
(1) Single First Aider
(2) Two First Aiders

Lesson 7 Ordinary First Aid

ELEMENT 7.1 First Aid - minor incidents

Training Staff shall **explain and demonstrate**:

7.1.1 Minor incidents
(1) Bleeding
(2) Burns

- (3) Chemical contacts
- (4) Hypothermia
- (5) Hyperthermia
- (6) Bite wounds
- (7) Eye injury
- (8) Fractures
- (9) Injury to joints, muscles and bones
- (10) Rest - Ice - Compression - Elevation (R - I - C - E) method
- (11) First Aid equipment for minor incidents

ELEMENT 7.2 Minor to serious incidents

Training Staff shall **explain**:

- 7.2.1 Minor to serious incidents
- (1) Minor incident escalating to a serious incident
 - (2) In a WTG environment

ELEMENT 7.3 Psychological First Aid

Training Staff shall **explain**:

- 7.3.1 Psychological First Aid
- (1) Normal reactions to an unusual situation
 - (2) To a casualty
 - (3) To the surroundings and next of kin
 - (4) Reactions after acting as a First Aider

Lesson 8 Scenario - based training

ELEMENT 8.1 Practise First Aid techniques

Training Staff shall **explain**:

- 8.1.1 Safety procedures in the training area

Delegates shall **practise and demonstrate**:

- 8.1.2 Safe life - saving First Aid techniques through relevant scenarios according to the Control Measures form



Training Staff shall *ensure* that the following topics are covered during scenario-based training:

- 8.1.3
- (1) Managing incidents
 - (2) Providing necessary life-saving First Aid
 - (3) Correct use of First Aid equipment
 - (4) Knowledge of and skills for AED safety procedures
 - (5) Correct use of an AED

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

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

- 8.1.4 First Aid situations
- (1) Dropped object - serious head injury, unresponsive, breathing
 - (2) Fall from heights - external bleeding, unresponsive, breathing
 - (3) Serious internal bleeding
 - (4) Serious external bleeding
 - (5) Unresponsive with normal breathing
 - (6) Unresponsive, not breathing
 - (7) CPR using an AED
 - (8) Epileptic seizure
 - (9) Diabetes - type one
 - (10) Asthma
 - (11) Stroke (circulatory, respiratory, central nervous system, includes heat stroke)
 - (12) Serious burn
 - (13) Hypothermia
 - (14) Hyperthermia
 - (15) Crush injury
 - (16) Eye injury
 - (17) Electrical accidents minor/serious
 - (18) Amputation
 - (19) Minor incident escalating to a serious incident

Training Staff shall **facilitate debriefing**:

- 8.1.5 First Aid situations
- (1) Review positive actions observed during exercise



- (2) Suggest points for improvement

Training Staff shall **facilitate debriefing**:

- 8.1.6 Complex incidents with several (2-5) casualties in wind turbine working environments
- (1) Review positive actions observed during exercise
 - (2) Suggest points for improvement

Lesson 9 Evaluation

ELEMENT 9.1 Summary

Training Staff shall:

- 9.1.1 Summarise the Module and give the Delegates final feedback

ELEMENT 9.2 Evaluation

Delegates shall:

- 9.2.1 Conduct a written evaluation

Training Staff shall:

- 9.2.2 Give necessary feedback on the written evaluations

ELEMENT 9.3 Certificates

Training Staff shall:

- 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 BST First Aid

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

2.1 Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation.

Training Staff shall be:

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

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

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

2.2 Trainer/Delegate Ratio

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

Module	Session	Trainer - Delegate Ratio
BST First Aid Module	Theory	1:12
	Practical	2:12



2.3 Facilities

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

2.4 Theory training facilities

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

2.5 Practical training facilities

Shall be designed to enable each Delegate to individually and/ or as part of a team, see, hear and practise the taught material.

Note:

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

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

The Training Provider shall hold the required permits to operate the facilities.

2.6 Equipment

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

- (1) Torso anatomy dummy
- (2) Airway model
- (3) Resuscitation dummies - adult and child
- (4) First Aid equipment
- (5) First Aid bag
- (6) Make - up kit for First Aid scenarios
- (7) AED Trainers
- (8) Blankets

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



Europe - EN

UK - BS

USA - ANSI

Canada - CSA

Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

Section 3 - Administration and certification

3.1 Delegate performance assessment

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

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

3.2 Validity

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

3.3 Certification

Training Providers are responsible for issuing a certificate directly to the Delegate upon completion of the training programme and to the sponsoring company when required. Each certificate shall indicate that the Delegate has been assessed according to the learning outcomes and shall contain the following:

- (1) Training Provider's name
- (2) Full GWO course title stating that the training module is GWO approved
- (3) Delegate's name
- (4) Course dates
- (5) Expiry date
- (6) Training Provider's signature



3.4 Records

The Training Provider shall keep a record of the Delegates that have completed the BST First Aid Module for a minimum period of **5 years**.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any Delegate by name.

3.5 Measures

The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module.

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

3.6 Control Measures

Please find the Control Measures Form on next page.

Control Measures

Name: _____

Course: BST First Aid Module

Date: _____

Training Provider: _____

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

Follows instructions when required					
Demonstrates correct and safe Manual Handling in exercise scenario					
Knowledge and Understanding					
Applies subject knowledge correctly in given scenario					
Demonstrates understanding of subject					
Total Marks 0-9 Pass 10-27 Fail					

Instructor: _____

<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL
--------------------------------------	--------------------------------------

The Practical Assessment Measures Form is a final evaluation tool for the instructors to assess Delegates during practical elements. It allows measurement of the number of violations in regard to safety, competency, or attitude. It 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 when a Delegate fails the Module.





Document type:

Appendix 1 A

Number M.S.A.
Date 12-03-2014
Page 56 of 184

Title:

Medical Self-Assessment

Issued by:



Unrestricted

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

This signed Medical Self-Assessment must be returned to the Training Provider's Representative/Responsible prior to the start of the training course.

Full name as stated in passport	Company
---------------------------------	---------

The following conditions could pose a risk, when you actively participate in GWO training
Asthma or other respiratory disorders
Epilepsy, blackouts or other fits
Angina or other heart complaints
Vertigo or inner ear problems (difficulty with balance)
Claustrophobia/Acrophobia (fear of enclosed area/height)
Blood pressure disorder
Diabetes
Pacemaker or implanted defibrillator
Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility
Known allergies (E.g. bee, wasps or spider stings / bites)
Recent surgery
Any other medical condition or medication dependency that could affect climbing or physical impact of climbing

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

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training.

I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training.

I hereby agree: should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Signature _____ **Date** _____



GLOBAL WIND ORGANISATION STANDARD

Basic Safety Training (BST) (Onshore/Offshore)

Manual Handling

**Version 6
12 March, 2014**

Foreword

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

This Standard has been developed in response to the demand for recognisable Basic Safety Training (BST) in the industry. The development of this Standard has been prepared in co-operation between the members of GWO. This work is based on risk assessments and factual incident/accident statistics within the industry pertaining to the installation, service and maintenance of wind turbine generators.

The objective of this Standard is to develop common industry training and best practise Standards for health and safety as a vital and necessary way forward to reducing risks for personnel in the wind industry working on site and to reducing environmental risks across Europe and the globe.

This Standard describes the requirements for Basic Safety Training in the wind industry that are recommended by GWO. Where national legislation sets higher requirements for the training, the Training Provider shall incorporate these requirements 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.. Additional training may be required due to company or country specific requirements.

GWO recommends a company specific Basic Safety Introduction and Technical Safety Training as additional training.

Editorial and Approval

The final editorial and approval of this Standard has been conducted by the GWO Steering Committee.

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 Generators, sub stations, etc.) shall complete Basic Safety Training courses relevant for their assignments. All work shall 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 this certificate as possessing the required knowledge to stop an unsafe work situation.

Table of Contents

MANUAL HANDLING	57
EDITORIAL AND APPROVAL	59
ACKNOWLEDGEMENT	59
TABLE OF CONTENTS	60
LIST OF ABBREVIATIONS.....	62
INTRODUCTION.....	63
SECTION 1 - THE BST MANUAL HANDLING MODULE.....	63
1.1 DURATION OF THE BST MANUAL HANDLING MODULE.....	63
1.2 TARGET GROUP	64
1.3 DELEGATE PREREQUISITES FOR THE BST MANUAL HANDLING MODULE	64
1.4 PHYSICAL DEMANDS OF THE BST MANUAL HANDLING MODULE	64
1.5 AIMS AND OBJECTIVES OF THE BST MANUAL HANDLING MODULE	64
1.6 LEARNING OUTCOMES OF THE BST MANUAL HANDLING MODULE.....	65
<i>Lesson 1 Introduction.....</i>	<i>65</i>
<i>Lesson 2 Legislation</i>	<i>66</i>
<i>Lesson 3 Risks and hazards</i>	<i>66</i>
<i>Lesson 4 Spinal Anatomy and Posture</i>	<i>67</i>
<i>Lesson 5 Planning lifts.....</i>	<i>67</i>
<i>Lesson 6 Risk Control and lifting techniques.....</i>	<i>67</i>
<i>Lesson 7 Behavioural safety.....</i>	<i>68</i>
<i>Lesson 8 Scenario-based training.....</i>	<i>68</i>
<i>Lesson 9 Evaluation.....</i>	<i>68</i>
1.7 DELEGATE PERFORMANCE ASSESSMENT.....	69
BST MANUAL HANDLING MODULE TIME TABLE	70
1.9 ELEMENTS, BST MANUAL HANDLING MODULE	71
<i>Lesson 1 Introduction.....</i>	<i>71</i>
ELEMENT 1.1 Safety instructions and emergency procedures.....	71
ELEMENT 1.2 Facilities	71
ELEMENT 1.3 Introduction	71
ELEMENT 1.4 Scope and main objectives.....	72
ELEMENT 1.5 On-going assessments.....	72
ELEMENT 1.6 Motivation	72
<i>Lesson 2 Legislation</i>	<i>72</i>
ELEMENT 2.1 Global legislation.....	72
ELEMENT 2.2 National legislation	72
<i>Lesson 3 Risk and Hazards</i>	<i>73</i>
ELEMENT 3.1 Risk and hazards in the wind turbine industry	73
<i>Lesson 4 Spinal anatomy and posture</i>	<i>73</i>

ELEMENT 4.1	Muscular and skeletal injuries.....	73
ELEMENT 4.2	Spinal anatomy and posture	73
ELEMENT 4.3	Shoulder anatomy.....	73
ELEMENT 4.4	Symptom awareness.....	74
ELEMENT 4.5	Reporting methods	74
<i>Lesson 5</i>	<i>Planning lifts.....</i>	<i>74</i>
ELEMENT 5.1	T.I.L.E. Principle.....	74
<i>Lesson 6</i>	<i>Risk control and lifting techniques</i>	<i>74</i>
ELEMENT 6.1	Further Control Measures.....	74
ELEMENT 6.2	Safe lifting techniques.....	75
<i>Lesson 7</i>	<i>Behavioural safety.....</i>	<i>75</i>
ELEMENT 7.1	Consequences of incorrect Manual Handling	75
ELEMENT 7.2	Causes of injuries	75
<i>Lesson 8</i>	<i>Scenario-based training.....</i>	<i>76</i>
ELEMENT 8.1	Practise in safe lifting techniques.....	76
<i>Lesson 9</i>	<i>Evaluation.....</i>	<i>76</i>
ELEMENT 9.1	Summary.....	76
ELEMENT 9.2	Evaluation	76
ELEMENT 9.3	Certificates	77
SECTION 2 - RESOURCES FOR BST MANUAL HANDLING		78
2.1	STAFF	78
2.2	TRAINER/DELEGATE RATIO	78
2.3	FACILITIES	79
2.4	THEORY TRAINING FACILITIES	79
2.5	PRACTICAL TRAINING FACILITIES	79
2.6	EQUIPMENT	79
SECTION 3 - ADMINISTRATION AND CERTIFICATION		80
3.1	DELEGATE PERFORMANCE ASSESSMENT	80
3.2	VALIDITY	80
3.3	CERTIFICATION	80
3.4	RECORDS	81
3.5	MEASURES.....	81
3.6	CONTROL MEASURES.....	81
CONTROL MEASURES		82

List of abbreviations

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

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

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

Section 1 - The BST Manual Handling Module

1.1 Duration of the BST Manual Handling Module

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

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

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

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

1.2 Target group

Personnel working in the wind industry or related fields needing to obtain their GWO BST Manual Handling Module certificate.

1.3 Delegate prerequisites for the BST Manual Handling Module

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

Training Providers shall have a procedure that requires Delegates to sign a statement (see Appendix 1A, Suggestion for Medical Statement from GWO) stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under influence of any narcotic substance or alcohol.

Delegates' signatures shall be collected prior to the start of the safety training course.

1.4 Physical demands of the BST Manual Handling Module

BST Modules may potentially be physically demanding.

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

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

1.5 Aims and objectives of the BST Manual Handling Module

The aims of this Module shall give the participants awareness through theoretical and practical training to encourage positive Manual Handling behaviour and perform Manual Handling tasks in a

safe manner in the wind turbine industry/environment, in accordance with GWO Manual Handling.

The BST Manual Handling Module shall ensure that:

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

1.6 Learning outcomes of the BST Manual Handling Module

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

Lesson 1 Introduction

15 min.

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

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



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

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

Lesson 2 Legislation

10 min.

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

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

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

Lesson 3 Risks and hazards

20 min.

The aim of this 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 BST Module, Delegates shall be able to:

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

Lesson 4 Spinal Anatomy and Posture

30 min.

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

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

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

Lesson 5 Planning lifts

20 min.

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

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

- (1) Understanding of the Task Individual Load Environment (T.I.L.E.) Principle

Lesson 6 Risk Control and lifting techniques

25 min.

The aim of this 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 BST Module, Delegates shall be able to demonstrate:

- (1) Knowledge of further Control Measures

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

Lesson 7 Behavioural safety

15 min.

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

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

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

Lesson 8 Scenario-based training

60 min.

The aim of this 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 BST Module, Delegates shall be able to demonstrate:

- (1) Safe lifting techniques

Lesson 9 Evaluation

15 min.

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

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

- (1) Active participation in the evaluation

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

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

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

- (1) Lifting various objects in the correct and proper manner. These can be of different shapes and sizes, but shall not weigh more than 15Kg
- (2) In teams of 2 to perform a correct lift of a rescue dummy that weighs no more than 30 Kg
- (3) The scenarios shall give the Delegates the opportunity to practise some of the further Control Measures mentioned in Section 1.9 - Element 6.1

The formal evaluation of knowledge of above scenarios shall be in accordance with the Control Measures in Section - 3 (Measures).

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

BST Manual Handling Module time table

The order in which the elements of this BST 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	Scope and main learning objectives	
		1.5	On-going assessments	
		1.6	Motivation	
2	Legislation	2.1	Global legislation	
		2.2	National legislation	
		TOTAL		
3	Risks and hazards	3.1	Risk and hazards in the wind turbine industry	
		TOTAL		
4	Spinal anatomy and posture	4.1	Muscular skeletal injuries	
		4.2	Spinal anatomy and posture	
		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	Practise in safe lifting technique	
		TOTAL		
9	Evaluation	9.1	Summary	
		9.2	Evaluation	

		9.3	Certificates	
			TOTAL	15 min.
GRAND TOTAL				210 min.

1.9 Elements, BST Manual Handling Module

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

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

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

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

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give**:

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

Training Staff shall **explain**:

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

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain**:

- 1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain**:

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

ELEMENT 1.6 Motivation

Training Staff shall **explain**:

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

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

- 2.1.1 Applicable legislation
- 2.1.2 Legal responsibilities

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

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

Lesson 3 Risk and Hazards

ELEMENT 3.1 Risk and hazards in the wind turbine industry

Training Staff shall **lead discussions:**

- 3.1.1 Risks and hazards of Manual Handling relevant to the job functions within the wind turbine industry, such as:
- (1) Awkward positions
 - (2) Forceful exertions
 - (3) Repetitive motions
 - (4) Contact stress
 - (5) Vibration, local and whole body
 - (6) Duration of exposure
 - (7) Frequency of exposure
 - (8) Intensity of exposure
- 3.1.2 How to avoid the risks and hazards and improve safety while executing Manual Handling related tasks

Lesson 4 Spinal anatomy and posture

ELEMENT 4.1 Muscular and skeletal injuries

Training Staff shall **explain and demonstrate:**

- 4.1.1 Muscular and Skeletal Injuries related to Manual Handling, including Back Injuries, e.g. prolapsed disc, muscle strains

ELEMENT 4.2 Spinal anatomy and posture

Training Staff shall **explain and demonstrate:**

- 4.2.1 Spinal anatomy and posture

ELEMENT 4.3 Shoulder anatomy

Training Staff shall **explain and demonstrate:**

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

ELEMENT 4.4 Symptom awareness

Training Staff shall **explain**:

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

ELEMENT 4.5 Reporting methods

Training Staff shall **explain**:

- 4.5.1 Reporting methods and procedures in case of injuries
(1) National requirements
(2) Company specifics

Lesson 5 Planning lifts

ELEMENT 5.1 T.I.L.E. Principle

Delegates shall **explain**:

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

Training Staff shall **explain**:

- 5.1.3 Planning Manual Handling correctly by using the T.I.L.E. principle
(1) Task (repetition, duration, location, distance, hazards, stairs, pace)
(2) Individual (posture, capability, height, size)
(3) Load (weight, handles, size, temperature, texture)
(4) Environment (rain, wind, obstacles, floor conditions)

Lesson 6 Risk control and lifting techniques

ELEMENT 6.1 Further Control Measures

Training Staff shall **explain and demonstrate**:

- 6.1.1 Further Control Measures to reduce risk of injury, including



- (1) Mechanical handling (e.g. cranes, scissor lifts, trolleys, steps)
- (2) PPE correct fit (e.g. correct sizes, boot laces tied)
- (3) Breaking up loads
- (4) Protecting pre-existing injuries
- (5) Adequate lighting
- (6) Good housekeeping

ELEMENT 6.2 Safe lifting techniques

Training Staff shall **explain and demonstrate**:

- 6.2.1 Safe lifting techniques, including
- (1) Stretching and warming-up relevant muscle groups
 - (2) Safe lifting techniques from floor
 - (3) Safe lifting techniques from height (e.g. bench, shelving rack)
 - (4) Safe lifting techniques using 2 or more persons

Delegates shall **practise and demonstrate**:

- 6.2.2 Safe lifting techniques, including
- (1) Stretching and warming up relevant muscle groups
 - (2) Safe lifting techniques from floor
 - (3) Safe lifting techniques from height (e.g. bench, shelving rack)
 - (4) Safe lifting techniques using 2 or more persons

Lesson 7 Behavioural safety

ELEMENT 7.1 Consequences of incorrect Manual Handling

Training Staff shall **explain**:

- 7.1.1 Consequences of incorrect Manual Handling

ELEMENT 7.2 Causes of injuries

Training Staff shall **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 Practise in safe lifting techniques

Training Staff shall **explain**:

8.1.1 Safety procedures in the training area

Delegates shall **practise and demonstrate**:

8.1.2 Safe lifting techniques in scenarios relevant to the industry according to the Control Measures form (*see Lesson 8 Notes below*)

Formal assessment of knowledge (see Section 1.7)

Lesson 8 Notes:

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

Lesson 9 Evaluation

ELEMENT 9.1 Summary

Training Staff shall:

9.1.1 Summarise the Module and give the Delegates final feedback

ELEMENT 9.2 Evaluation

Delegates shall:

9.2.1 Conduct a written evaluation

Training Staff shall:

9.2.2 Give necessary feedback on the written evaluations

ELEMENT 9.3 Certificates

Training Staff shall:

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 BST Manual Handling

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

2.1 Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation.

Training Staff shall be:

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

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

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

2.2 Trainer/Delegate Ratio

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

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

2.3 Facilities

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

2.4 Theory training facilities

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

2.5 Practical training facilities

Shall be designed to enable each Delegate to individually and/or as part of a team, see, hear and practise the taught material.

Note:

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

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

The Training Provider shall hold the required permits to operate the facilities.

2.6 Equipment

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

- (1) A Lumbar Vertebrae model for educational purposes
- (2) A model of a shoulder for educational purposes
- (3) Rescue dummy, weighing 30 Kg
- (4) Lifting props for Manual Handling, weighing maximum 15 Kg
- (5) Personal Protective Equipment (PPE)

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

Europe - EN

UK - BS

USA - ANSI

Canada - CSA



Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

Section 3 - Administration and certification

3.1 Delegate performance assessment

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

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

3.2 Validity

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

3.3 Certification

Training Providers are responsible for issuing a certificate directly to the Delegate upon completion of the training programme and to the sponsoring company when required. Each certificate shall indicate that the Delegate has been assessed according to the learning outcomes and shall contain the following:

- (1) Training Provider's name
- (2) Full GWO course title stating that the training module is GWO approved
- (3) Delegate's name
- (4) Course dates
- (5) Expiry date
- (6) Training Provider's signature

3.4 Records

The Training Provider shall keep a record of the Delegates that have completed the BST Manual Handling Module for a minimum period of **5 years**.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any Delegate by name.

3.5 Measures

The Trainer keeps the Control Measures Forms until the completion/ evaluation of the BST Module. If a Delegate fails to meet the demands, they shall attend another BST Manual Handling Module course.

3.6 Control Measures

Please find the Control Measures Form on next page.

Control Measures

Name: _____

Course: BST Manual Handling Module

Date: _____

Training Provider: _____

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

Demonstrates correct and safe Manual Handling in exercise scenario					
Knowledge and Understanding					
Applies subject knowledge correctly in given scenario					
Demonstrates understanding of subject					
Total Marks 0-9 Pass 10-27 Fail					

Instructor: _____

<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL
--------------------------------------	--------------------------------------

The Practical Assessment Measures Form is a final evaluation tool for the instructors to assess Delegates during practical elements. It allows measurement of the number of violations in regard to safety, competency, or attitude. It 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 when a Delegate fails the Module.

Title:

Medical Self-Assessment

Issued by:



Unrestricted

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

This signed Medical Self-Assessment must be returned to the Training Provider's Representative/Responsible prior to the start of the training course.

Full name as stated in passport	Company
---------------------------------	---------

The following conditions could pose a risk, when you actively participate in GWO training
Asthma or other respiratory disorders
Epilepsy, blackouts or other fits
Angina or other heart complaints
Vertigo or inner ear problems (difficulty with balance)
Claustrophobia/Acrophobia (fear of enclosed area/height)
Blood pressure disorder
Diabetes
Pacemaker or implanted defibrillator
Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility
Known allergies (E.g. bee, wasps or spider stings / bites)
Recent surgery
Any other medical condition or medication dependency that could affect climbing or physical impact of climbing

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

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training.

I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training.

I hereby agree: should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Signature _____ **Date** _____



GLOBAL WIND ORGANISATION STANDARD

Basic Safety Training (BST) (Onshore/Offshore)

Fire awareness

**Version 6
12 March, 2014**

Foreword

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

This Standard has been developed in response to the demand for recognisable Basic Safety Training (BST) in the industry. The development of this Standard has been prepared in co-operation between the members of GWO. This work is based on risk assessments and factual incident/accident statistics within the industry pertaining to the installation, service and maintenance of wind turbine generators.

The objective of this Standard is to develop common industry training and best practise Standards for health and safety as a vital and necessary way forward to reducing risks for personnel in the wind industry working on site and to reducing environmental risks across Europe and the globe.

This Standard describes the requirements for Basic Safety Training in the wind industry that are recommended by GWO. Where national legislation sets higher requirements for the training, the Training Provider shall incorporate these requirements 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.. Additional training may be required due to company or country specific requirements.

GWO recommends a company specific Basic Safety Introduction and Technical Safety Training as additional training.

Editorial and approval

The final editorial and approval of this Standard has been conducted by the GWO Steering Committee.

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 Generators, sub stations, etc.) shall complete Basic Safety Training courses relevant for their assignments. All work shall 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 this certificate as possessing the required knowledge to stop an unsafe work situation.

Table of Contents

FIRE AWARENESS	85
EDITORIAL AND APPROVAL	87
ACKNOWLEDGEMENT	87
TABLE OF CONTENTS	88
LIST OF ABBREVIATIONS	90
INTRODUCTION.....	91
SECTION 1 - THE BST FIRE AWARENESS	91
1.1 DURATION OF THE BST FIRE AWARENESS MODULE	91
1.2 TARGET GROUP	92
1.3 DELEGATE PREREQUISITES FOR THE BST FIRE AWARENESS MODULE	92
1.4 PHYSICAL DEMANDS OF THE BST FIRE AWARENESS MODULE	92
1.5 AIMS AND OBJECTIVES OF THE BST FIRE AWARENESS MODULE	92
1.6 LEARNING OUTCOMES OF THE BST FIRE AWARENESS MODULE	93
<i>Lesson 1 Introduction.....</i>	<i>93</i>
<i>Lesson 2 Legislation</i>	<i>94</i>
<i>Lesson 3 Fire combustion and fire spread.....</i>	<i>94</i>
<i>Lesson 4 Fire extinguishing</i>	<i>94</i>
<i>Lesson 5 Fire prevention</i>	<i>95</i>
<i>Lesson 6 Firefighting equipment in a WTG.....</i>	<i>95</i>
<i>Lesson 7 Practise and scenario-based training.....</i>	<i>96</i>
<i>Lesson 8 Evaluation</i>	<i>96</i>
1.7 DELEGATE PERFORMANCE ASSESSMENT.....	96
BST MODULE FIRE AWARENESS TIME TABLE	97
1.9 ELEMENTS, BST FIRE AWARENESS MODULE	99
<i>Lesson 1 Introduction.....</i>	<i>99</i>
ELEMENT 1.1 Safety instructions and emergency procedures.....	99
ELEMENT 1.2 Facilities	99
ELEMENT 1.3 Introduction	99
ELEMENT 1.4 Scope and main objectives.....	99
ELEMENT 1.5 On-going assessments.....	100
ELEMENT 1.6 Motivation	100
<i>Lesson 2 Legislation</i>	<i>100</i>
ELEMENT 2.1 Global legislation.....	100
ELEMENT 2.2 National legislation	100
<i>Lesson 3 Fire combustion and fire spread.....</i>	<i>100</i>
ELEMENT 3.1 Types of fires	100

ELEMENT 3.2	Square of combustion	101
ELEMENT 3.3	Fire Spread	101
ELEMENT 3.4	Smoke gases.....	101
<i>Lesson 4</i>	<i>Fire extinguishing</i>	<i>102</i>
ELEMENT 4.1	Contingency plan	102
ELEMENT 4.2	Assessing the fire	102
ELEMENT 4.3	Fire classes	102
<i>Lesson 5</i>	<i>Fire prevention</i>	<i>103</i>
ELEMENT 5.1	Fire hazards.....	103
ELEMENT 5.2	Fire prevention measures	103
<i>Lesson 6</i>	<i>Firefighting equipment in a WTG</i>	<i>103</i>
ELEMENT 6.1	Pre-use inspection.....	103
ELEMENT 6.2	Correct use of firefighting equipment.....	104
<i>Lesson 7</i>	<i>Practise and scenario-based training</i>	<i>104</i>
ELEMENT 7.1	Practise.....	104
ELEMENT 7.2	Scenario-based training	104
<i>Lesson 8</i>	<i>Evaluation</i>	<i>105</i>
ELEMENT 8.1	Summary.....	105
ELEMENT 8.2	Evaluation	105
ELEMENT 8.3	Certificates.....	105
SECTION 2 - RESOURCES FOR THE BASIC SAFETY TRAINING		106
2.1	STAFF	106
2.2	TRAINER/DELEGATE RATIO	106
2.3	FACILITIES	107
2.4	THEORY TRAINING FACILITIES	107
2.5	PRACTICAL TRAINING FACILITIES	107
2.6	EQUIPMENT	107
SECTION 3 - ADMINISTRATION AND CERTIFICATION		108
3.1	DELEGATE PERFORMANCE ASSESSMENT	108
3.2	VALIDITY	108
3.3	CERTIFICATION	108
3.4	RECORDS.....	109
3.5	MEASURES.....	109
3.6	CONTROL MEASURES	109
CONTROL MEASURES		110

List of Abbreviations

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

Introduction

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

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

Section 1 - The BST Fire Awareness

1.1 Duration of the BST Fire Awareness Module

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

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

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

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

1.2 Target group

Personnel working in the wind industry or related fields needing to obtain their GWO BST Fire Awareness Module certificates.

1.3 Delegate prerequisites for the BST Fire Awareness Module

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

Training providers shall have a procedure that requires Delegates to sign a statement (see Appendix 1A, Suggestion for Medical Statement from GWO) stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under influence of any narcotic substance or alcohol.

Delegates' signatures shall be collected prior to the start of the safety training course.

1.4 Physical demands of the BST Fire Awareness Module

BST Modules may potentially be physically demanding.

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

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

1.5 Aims and objectives of the BST Fire Awareness Module

The aim of this course is to give the participants the basic knowledge and skills through theoretical and practical training to prevent fires, conduct 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 firefighting equipment.

The BST Fire Awareness Module shall ensure that:

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

1.6 Learning outcomes of the BST Fire Awareness Module

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

Lesson 1 Introduction

15 min.

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

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

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

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

Lesson 2 Legislation

5 min.

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

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

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

Lesson 3 Fire combustion and fire spread

20 min.

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

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

- (1) Knowledge of the different types of fires and the material state, including the type of material surface
- (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 this lesson is to give the Delegates the needed knowledge and understanding to assess a fire and if needed to be able to identify the right extinguishing media according to the fire

classes. Furthermore, the Delegates shall obtain the needed knowledge and understanding to act according to the contingency plans in a WTG.

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

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

Lesson 5 Fire prevention

20 min.

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

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

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

Lesson 6 Firefighting equipment in a WTG

20 min.

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

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

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

Lesson 7 Practise and scenario-based training

80 min.

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

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

- (1) Efficient and safe use of the firefighting equipment in a WTG
- (2) The ability to assess the fire and act in a correct manner upon discovering a fire in a WTG

Lesson 8 Evaluation

15 min.

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

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

- (1) Active participation in the evaluation

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

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

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

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

The formal evaluation of knowledge of above scenarios shall be in accordance with the Practical Assessment Measures in Section - 3 (Measures).

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

BST Module Fire Awareness time table

The order in which the elements of this BST 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	Scope and main 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	Firefighting equipment in a WTG	6.1	Pre-use inspection	
		6.2	Correct use of firefighting equipment	
7	Practise and scenario-based training	7.1	Practise	
		7.2	Scenario-based training	
8	Evaluation	8.1	Summary	
		8.2	Evaluation	
		8.3	Certificates	

GRAND TOTAL	200 min.
--------------------	-----------------

1.9 Elements, BST Fire Awareness Module

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

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

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

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

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give**:

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

Training Staff shall **explain**:

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

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain**:

- 1.4.1 Scope and main objectives of this BST Fire Awareness Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain**:

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

ELEMENT 1.6 Motivation

Training Staff shall **explain**:

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

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

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

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

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

Lesson 3 Fire combustion and fire spread

ELEMENT 3.1 Types of fires

Training Staff shall **explain**:

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

Training Staff shall **ensure**:

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

ELEMENT 3.2 Square of combustion

Training Staff shall **explain**:

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

Training Staff shall **ensure**:

- 3.2.2 Correct understanding of the square of combustion

ELEMENT 3.3 Fire Spread

Delegates shall **explain**:

- 3.3.1 Fire spread by (in relation to the wind energy industry)
- (1) Conduction
 - (2) Convection
 - (3) Radiation
 - (4) Direct Burning

Training Staff shall **ensure**:

- 3.3.2 Correct understanding of fire spread

ELEMENT 3.4 Smoke gases

Delegates shall **explain**:

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

Training Staff shall **ensure**:

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

Lesson 4 *Fire extinguishing*

ELEMENT 4.1 Contingency plan

Delegates shall **explain**:

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

Training Staff shall **ensure**:

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

ELEMENT 4.2 Assessing the fire

Delegates shall **explain**:

- 4.2.1 Fire intensity curve
- 4.2.2 How to assess the fire and how to act based on the assessment of the fire

Training Staff shall **ensure**:

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

ELEMENT 4.3 Fire classes

Delegates shall **explain**:

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

Training Staff shall **ensure**:

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

Lesson 5 Fire prevention

ELEMENT 5.1 Fire hazards

Delegates shall **explain**:

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

Training Staff shall **ensure**:

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

ELEMENT 5.2 Fire prevention measures

Delegates shall **explain**:

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

Training Staff shall **ensure**:

- 5.2.3 Correct understanding of how to improve fire safety and fixed systems in WTGs
- 5.2.4 Awareness of fixed systems in WTGs, including requirements for special training for entering WTGs with fixed systems

Lesson 6 Firefighting equipment in a WTG

ELEMENT 6.1 Pre-use inspection

Delegates shall **explain and demonstrate**:

- 6.1.1 The importance of pre-use inspection of firefighting equipment
- 6.1.2 How to perform pre-use inspection of firefighting equipment

Training Staff shall **ensure**:

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

ELEMENT 6.2 Correct use of firefighting equipment

Training Staff shall **explain and demonstrate**:

- 6.2.1 Advantages and disadvantages of various firefighting equipment in WTGs
- 6.2.2 Safe distance and precautions with various firefighting equipment (handheld carbon dioxide (CO₂), dry chemical and water extinguisher, including fire blankets)
- 6.2.3 Correct, efficient and safe use of various firefighting equipment in WTGs
- 6.2.4 Advantages and disadvantages of the various firefighting equipment in a WTG

Lesson 7 Practise and scenario-based training

ELEMENT 7.1 Practise

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

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

Lesson 7 Notes:

*(1) Each Delegate would benefit most if they practise the operation and use of **each** of the following types of fire extinguishers:*

- (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 shall:

- 8.1.1 Summarise the BST Module and give the Delegates final feedback

ELEMENT 8.2 Evaluation

Delegates shall:

- 8.2.1 Conduct a written evaluation

Training Staff shall:

- 8.2.2 Give necessary feedback on the written evaluations

ELEMENT 8.3 Certificates

Training Staff shall:

- 8.3.1 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

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

2.1 Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation.

Training Staff shall be:

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

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

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

2.2 Trainer/Delegate Ratio

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

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

2.3 Facilities

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

2.4 Theory training facilities

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

2.5 Practical training facilities

Shall be designed to enable each Delegate to individually and/ or as part of a team, see, hear and practise the taught material.

Note:

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

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

The Training Provider shall hold the required permits to operate the facilities.

2.6 Equipment

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

- (1) Handheld CO₂ -, dry chemical- and water extinguishers
- (2) Fire blankets
- (3) Dummies
- (4) Personal Protective Equipment (PPE)

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

Europe - EN

UK - BS

USA - ANSI

Canada - CSA

Australia and New Zealand - AS/NZS

Asia - ANSI / EN

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

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

3.2 Validity

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

3.3 Certification

Training providers are responsible for issuing a certificate directly to the Delegate upon completing the training 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:

- (1) Training Provider's name
- (2) Full GWO course title stating that the module is GWO approved
- (3) Delegate's name and date of birth
- (4) Course dates
- (5) Expiry date
- (6) Training Provider's signature

3.4 Records

The Training Provider must keep a record of the Delegates who have completed the BST Fire Awareness Module.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any specific Delegate by name for a minimum period of **5 years**.

3.5 Measures

The trainer keeps the control measure forms until completion/ evaluation of the BST Module. If a Delegate fails to meet the demands, they shall attend a new BST Fire Awareness Module.

3.6 Control measures

Find Control Measures Form on next page.

Control Measures

Name: _____

Course: BST Fire Awareness Module

Date: _____

Training Provider: _____

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

Demonstrates correct and safe Manual Handling in exercise scenario					
Knowledge and Understanding					
Applies subject knowledge correctly in given scenario					
Demonstrates understanding of subject					
Total Marks 0-9 Pass 10-27 Fail					

Instructor: _____

<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL
--------------------------------------	--------------------------------------

The Practical Assessment Measures Form is a final evaluation tool for the instructors to assess Delegates during practical elements. It allows measurement of the number of violations in regard to safety, competency, or attitude. It 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 when a Delegate fails the Module.

Title:

Medical Self-Assessment

Issued by:



Unrestricted

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

This signed Medical Self-Assessment must be returned to the Training Provider's Representative/Responsible prior to the start of the training course.

Full name as stated in passport	Company
---------------------------------	---------

The following conditions could pose a risk, when you actively participate in GWO training
Asthma or other respiratory disorders
Epilepsy, blackouts or other fits
Angina or other heart complaints
Vertigo or inner ear problems (difficulty with balance)
Claustrophobia/Acrophobia (fear of enclosed area/height)
Blood pressure disorder
Diabetes
Pacemaker or implanted defibrillator
Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility
Known allergies (E.g. bee, wasps or spider stings / bites)
Recent surgery
Any other medical condition or medication dependency that could affect climbing or physical impact of climbing

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

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training.

I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training.

I hereby agree: should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Signature _____ **Date** _____



**GLOBAL WIND ORGANISATION
STANDARD**

**Basic Safety Training (BST)
(Onshore/Offshore)**

WORKING AT HEIGHTS

**Version 6
12 March, 2014**

Foreword

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

This Standard has been developed in response to the demand for recognisable Basic Safety Training (BST) in the industry. The development of this Standard has been prepared in co-operation between the members of GWO. This work is based on risk assessments and factual incident/accident statistics within the industry pertaining to the installation, service and maintenance of wind turbine generators.

The objective of this Standard is to develop common industry training and best practise Standards for health and safety as a vital and necessary way forward to reducing risks for personnel in the wind industry working on site and to reducing environmental risks across Europe and the globe.

This Standard describes the requirements for Basic Safety Training in the wind industry that are recommended by GWO. Where national legislation sets higher requirements for the training, the Training Provider shall incorporate these requirements 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.. Additional training may be required due to company or country specific requirements.

GWO recommends a company specific Basic Safety Introduction and Technical Safety Training as additional training.

Editorial and approval

The final editorial and approval of this Standard has been conducted by the GWO Steering Committee.

Acknowledgement

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

GWO members agree that everyone working on one of their properties (Wind Turbine Generators, sub stations, etc.) shall complete Basic Safety Training courses relevant for their assignments. All work shall 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 this certificate as possessing the required knowledge to stop an unsafe work situation.

Table of Contents

WORKING AT HEIGHTS	113
FOREWORD.....	114
EDITORIAL AND APPROVAL	115
ACKNOWLEDGEMENT	115
TABLE OF CONTENTS	116
LIST OF ABBREVIATIONS.....	119
INTRODUCTION.....	120
SECTION 1 - THE BST WORKING AT HEIGHTS MODULE	120
1.1 DURATION OF THE BST WORKING AT HEIGHTS MODULE	120
1.2 TARGET GROUP	121
1.3 DELEGATE PREREQUISITES FOR THE BST WORKING AT HEIGHTS MODULE	121
1.4 PHYSICAL DEMANDS OF THE BST WORKING AT HEIGHTS MODULE	121
1.5 AIMS AND OBJECTIVES OF THE BST WORKING AT HEIGHTS MODULE.....	121
1.6 LEARNING OUTCOMES OF THE BST WORKING AT HEIGHTS MODULE	122
<i>Lesson 1 Introduction.....</i>	<i>122</i>
<i>Lesson 2 Legislation</i>	<i>123</i>
<i>Lesson 3 Harness.....</i>	<i>123</i>
<i>Lesson 4 Vertical fall arrest systems</i>	<i>124</i>
<i>Lesson 5 Fall arrest lanyards.....</i>	<i>124</i>
<i>Lesson 6 Work positioning lanyards</i>	<i>124</i>
<i>Lesson 7 Backup systems for exercises</i>	<i>125</i>
<i>Lesson 8 Practical exercises</i>	<i>125</i>
<i>Lesson 9 Workshop: risks/hazards.....</i>	<i>126</i>
<i>Lesson 10 Emergency procedures.....</i>	<i>126</i>
<i>Lesson 11 PPE review.....</i>	<i>126</i>
<i>Lesson 12 Rescue Devices</i>	<i>127</i>
<i>Lesson 13 Suspension trauma.....</i>	<i>127</i>
<i>Lesson 14 Rescue exercises.....</i>	<i>127</i>
<i>Lesson 15 Evaluation</i>	<i>127</i>
1.7 DELEGATE PERFORMANCE ASSESSMENT	128
BST MODULE WORKING AT HEIGHTS MODULE TIME TABLE	129
1.9 ELEMENTS, BST WORKING AT HEIGHTS MODULE	131
<i>Lesson 1 Introduction.....</i>	<i>131</i>
ELEMENT 1.1 Safety instructions and emergency procedures.....	131
ELEMENT 1.2 Facilities	131

ELEMENT 1.3	Introduction	131
ELEMENT 1.4	Scope and main objectives.....	132
ELEMENT 1.5	On-going assessments.....	132
ELEMENT 1.6	Motivation	132
Lesson 2	Legislation	132
ELEMENT 2.1	Global legislation.....	132
ELEMENT 2.2	National legislation	133
Lesson 3	Harness.....	133
ELEMENT 3.1	Proper inspection of PPE.....	133
ELEMENT 3.2	How to fit the harness correctly.....	133
ELEMENT 3.3	Demonstrate how often the harness shall be approved globally (in the EU, UK, USA, etc.).....	134
ELEMENT 3.4	Documentation, instrument number, authorisation date, etc.	134
ELEMENT 3.5	Maintenance of PPE	134
Lesson 4	Vertical fall arrest systems	134
ELEMENT 4.1	Legal requirements for using fall arrest system when working at heights.....	134
ELEMENT 4.2	How to do a user inspection of the vertical fall arrest system	134
ELEMENT 4.3	Correct fitting.....	135
ELEMENT 4.4	Correct use.....	135
ELEMENT 4.5	Correct country approval	135
ELEMENT 4.6	Correct documentation	135
Lesson 5	Fall arrest lanyards.....	135
ELEMENT 5.1	Fall arrest lanyards.....	135
ELEMENT 5.2	How to correctly connect fall arrest lanyards to the harness	135
ELEMENT 5.3	Fall indicators.....	136
ELEMENT 5.4	Twin and single fall arrest lanyards.....	136
ELEMENT 5.5	Different places allowed as anchor points	136
ELEMENT 5.6	The importance of always using fall arrest systems.....	136
ELEMENT 5.7	User inspection	136
Lesson 6	Work positioning lanyards	136
ELEMENT 6.1	Correct attachment of work positioning lanyards	136
ELEMENT 6.2	Using work positioning lanyards	137
ELEMENT 6.3	Attaching the work positioning lanyards correctly to the harness	137
ELEMENT 6.4	The different places allowed to secure or move around	137
ELEMENT 6.5	The importance of using work positioning.....	137
ELEMENT 6.6	User Inspection	137
Lesson 7	Backup systems for exercises	138
ELEMENT 7.1	Types of backup systems.....	138
ELEMENT 7.2	Different allowed maximum angles	138
ELEMENT 7.3	How to apply backup systems correctly to the harness.....	138
ELEMENT 7.4	The different places backup systems are allowed to be secured.....	138
ELEMENT 7.5	The importance of using backup systems	138
ELEMENT 7.6	User inspection	138
Lesson 8	Practical exercises	139
ELEMENT 8.1	Demonstrate correct use of fall arrest systems	139
ELEMENT 8.2	Demonstrate correct use of work positioning lanyards	139
ELEMENT 8.3	General understanding and use of all equipment.....	139
Lesson 9	Workshop: risks/hazards.....	139
ELEMENT 9.1	How Delegates use the BST Working at Heights course	139
Lesson 10	Emergency procedures.....	140
ELEMENT 10.1	Contents of an evacuation kit	140
ELEMENT 10.2	Safe and correct evacuation.....	140
ELEMENT 10.3	Preparing equipment for use	140

ELEMENT 10.4	Safe behaviour	140
<i>Lesson 11</i>	<i>PPE review</i>	141
ELEMENT 11.1	The individual parts of the PPE equipment.....	141
<i>Lesson 12</i>	<i>Rescue Devices</i>	141
ELEMENT 12.1	The individual parts of different rescue devices	141
<i>Lesson 13</i>	<i>Suspension trauma</i>	141
ELEMENT 13.1	Suspension trauma	141
<i>Lesson 14</i>	<i>Rescue exercises</i>	141
ELEMENT 14.1	Rescue situations in wind turbines	141
ELEMENT 14.2	Safe and correct rescue.....	142
ELEMENT 14.3	Correct usage of rescue devices.....	142
ELEMENT 14.4	Correct usage of anchorage points	142
ELEMENT 14.5	Correct behaviour on the ladder with PPE.....	142
<i>Lesson 15</i>	<i>Evaluation</i>	143
ELEMENT 15.1	Summary	143
ELEMENT 15.2	Evaluation	143
ELEMENT 15.3	Certificates	144
SECTION 2 - RESOURCES FOR BST WORKING AT HEIGHTS.....		145
2.1	STAFF	145
2.2	TRAINER/DELEGATE RATIO	145
2.3	FACILITIES	146
2.4	THEORY TRAINING FACILITIES	146
2.5	PRACTICAL TRAINING FACILITIES	146
2.6	EQUIPMENT	146
SECTION 3 - ADMINISTRATION AND CERTIFICATION		148
3.1	DELEGATE PERFORMANCE ASSESSMENT	148
3.2	VALIDITY	149
3.3	CERTIFICATION	149
3.4	RECORDS.....	149
3.5	MEASURES.....	150
3.6	CONTROL MEASURES.....	150
CONTROL MEASURES		151

List of abbreviations

BST	Basic Safety Training
BWH	Basic Working at Height
GWO	Global Wind Organisation
PPE	Personal Protective Equipment
PFPE	Personal Fall 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

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

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

Section 1 - The BST Working at Heights Module

1.1 Duration of the BST Working at Heights Module

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

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

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

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

1.2 Target group

Personnel working in the wind industry or related fields needing to obtain their GWO BST Working at Heights Module certificates.

1.3 Delegate prerequisites for the BST Working at Heights Module

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

Training providers shall have a procedure that requires Delegates to sign a statement (see Appendix 1A, Suggestion for Medical Statement from GWO) stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under influence of any narcotic substance or alcohol.

Delegates' signatures shall be collected prior to the start of the safety training course.

1.4 Physical demands of the BST Working at Heights Module

BST Modules may potentially be physically demanding.

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

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

1.5 Aims and objectives of the BST Working at Heights Module

The aims of this course shall give the participants the necessary basic knowledge and skills through theoretical and practical training to use basic PPE and perform safe work at heights and safe and

comprehensive basic rescue from heights in a remote wind turbine environment in accordance with BST Module Working at Heights.

The BST Module at Heights Module shall ensure that:

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

1.6 Learning outcomes of the BST Working at Heights Module

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

Lesson 1 Introduction

30 min.

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

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



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

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

Lesson 2 Legislation

20 min.

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

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

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

Lesson 3 Harness

50 min.

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

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

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

Lesson 4 Vertical fall arrest systems

40 min.

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

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

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

Lesson 5 Fall arrest lanyards

15 min.

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

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

- (1) Knowledge of legal requirements for using fall arrest systems when working at heights
- (2) How to correctly attach fall arrest systems to the harness (front and rear attachment points)
- (3) How to detect if PFPE has experienced a fall (Fall indicator)
- (4) Knowledge between the differences of a twin fall arrest lanyard and a single fall arrest lanyard, as well as the different ways of usage
- (5) Knowledge of the different places allowed for use as anchor points
- (6) Knowledge of the importance of always using a fall arrest system
- (7) How to conduct a user inspection and see if it is approved by documentation/authorisation date

Lesson 6 Work positioning lanyards

15 min.

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

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



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

Lesson 7 Backup systems for exercises

15 min.

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

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

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

Lesson 8 Practical exercises

55 min.

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

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

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

Lesson 9 *Workshop: risks/hazards*

20 min.

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

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

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

Lesson 10 *Emergency procedures*

160 min.

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

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

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

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

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

Lesson 11 *PPE review*

15 min.

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

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

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

Lesson 12 Rescue Devices

10 min.

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

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

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

Lesson 13 Suspension trauma

10 min.

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

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

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

Lesson 14 Rescue exercises

320 min.

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

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

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

Lesson 15 Evaluation

30 min.

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

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

- (1) Active participation in the evaluation

1.7 Delegate performance assessment

Assessment of learning outcomes:

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

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

Correct use of the evacuation/rescue device, including:

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

Correct rescue methods, including:

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

The formal evaluation of knowledge of above scenarios shall be in accordance with the Practical Assessment Measures in Section - 3 (Measures).

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

BST Module Working at Heights Module

Time Table

The order in which the elements of this BST 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	Scope and main objectives	
		1.5	On-going assessment	
		1.6	Motivation	
2	Legislation	2.1	Global legislation	
		2.2	National legislation	
		TOTAL		
3	Harness	3.1	Proper inspection of PPE	
		3.2	How to fit the harness correctly	
		3.3	How often the harness shall be approved globally (EU, UK, USA, etc.)	
		3.4	Documentation	
		3.5	Maintenance of PPE	
4	Vertical fall arrest systems	4.1	Legal requirements	
		4.2	User inspection	
		4.3	Correct fitting	
		4.4	Correct use	
		4.5	Correct country approval	
		4.6	Correct documentation	
5	Fall arrest lanyards	5.1	Legal requirements	
		5.2	How to affix arrest systems	
		5.3	Fall indicator	
		5.4	Twin fall lanyards and a single fall arrest lanyards	
		5.5	Different places allowed as anchor points	
		5.6	The importance of always using a fall	

		5.7	arrest system User inspection	
			TOTAL	15 min.
6	Work positioning lanyards	6.1	How to attach lanyard correctly	
		6.2	How to use lanyards	
		6.3	How to attach lanyards correctly to the harness	
		6.4	The different places allowed to secure or move around	
		6.5	The importance of using work positioning in order to leave the hands free for work	
		6.6	User inspection	
			TOTAL	15 min.
7	Backup systems for exercises	7.1	Types of backup systems	
		7.2	Different maximum angles that are allowed	
		7.3	How to attach correctly to the harness	
		7.4	The different places it is allowed to secure	
		7.5	The importance of using backup	
		7.6	User check	
			TOTAL	15 min.
8	Practical exercises	8.1	Demonstrate correct use of fall arrest systems	
		8.2	Demonstrate correct use of work positioning lanyards	
		8.3	General understanding and use of all equipment	
			TOTAL	55 min.
9	Workshop: risks and hazards	9.1	How to use basic Working at Height	
			TOTAL	20 min.
10	Emergency procedure	10.1	Contents of an evacuation kit	
		10.2	Safe and correct evacuation	
		10.3	Prepare the equipment for use	
		10.4	Safe behaviour	
			TOTAL	160 min.
11	PPE review	11.1	The individual parts of the PPE equipment	
			TOTAL	15 min.
12	Rescue 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 Working at Heights Module

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

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

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

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

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give**:

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

Training Staff shall **explain**:

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

ELEMENT 1.4 Scope and main objectives

Training Staff shall **explain**:

- 1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain**:

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

ELEMENT 1.6 Motivation

Training Staff shall **explain**:

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

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training Staff shall **explain**:

- 2.1.1 Applicable legislation
2.1.2 Legal responsibilities

ELEMENT 2.2 National legislation

Training Staff shall **explain**:

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

Lesson 3 Harness

ELEMENT 3.1 Proper inspection of PPE

Training Staff shall **explain and demonstrate**:

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

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

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

ELEMENT 3.2 How to fit the harness correctly

Delegates shall **practise and demonstrate**

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

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

Training Staff shall **explain and demonstrate**:

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

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

Training Staff shall **explain**:

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

ELEMENT 3.5 Maintenance of PPE

Training Staff shall **explain**:

- 3.5.1 Maintenance of PPE

Lesson 4 Vertical fall arrest systems

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

Training Staff shall **explain and demonstrate**:

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

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

Training Staff shall **explain and demonstrate**:

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

ELEMENT 4.3 Correct fitting

Training Staff shall **explain and demonstrate**:

- 4.3.1 Correct fitting of various vertical fall arrest systems

ELEMENT 4.4 Correct use

Training Staff shall **explain and demonstrate**:

- 4.4.1 Correct use of various vertical fall arrest systems

ELEMENT 4.5 Correct country approval

Training Staff shall **explain and demonstrate**:

- 4.5.1 How Delegates can find the correct country approval

ELEMENT 4.6 Correct documentation

Training Staff shall **explain and demonstrate**:

- 4.6.1 How Delegates can find the correct documentation

Lesson 5 Fall arrest lanyards

ELEMENT 5.1 Fall arrest lanyards

Training Staff shall **explain and demonstrate**:

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

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

Training Staff shall **explain and demonstrate**:

- 5.2.1 How to attach fall arrest lanyards correctly to the harness

ELEMENT 5.3 Fall indicators

Training Staff shall **explain and demonstrate**:

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

ELEMENT 5.4 Twin and single fall arrest lanyards

Training Staff shall **explain and demonstrate**:

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

ELEMENT 5.5 Different places allowed as anchor points

Training Staff shall **explain and demonstrate**:

- 5.5.1 The different places allowed as anchor points

Approved anchor points shall be pointed out for the Delegates

ELEMENT 5.6 The importance of always using fall arrest systems

Training Staff shall **explain and demonstrate**:

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

ELEMENT 5.7 User inspection

Training Staff shall **explain and demonstrate**:

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

Lesson 6 Work positioning lanyards

ELEMENT 6.1 Correct attachment of work positioning lanyards

Training Staff shall **explain and demonstrate**:

- 6.1.1 How the Delegates attach work positioning lanyards correctly
(1) To the ladder system

(2) To other places where lanyard use is possible

ELEMENT 6.2 Using work positioning lanyards

Training Staff shall **explain and demonstrate**:

- 6.2.1 When using work positioning lanyards, Delegates shall never lose focus for their own safety
(1) Paying attention to the manufacturers' guidelines

ELEMENT 6.3 Attaching the work positioning lanyards correctly to the harness

Training Staff shall **explain and demonstrate**:

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

ELEMENT 6.4 The different places allowed to secure or move around

Training Staff shall **explain and demonstrate**:

- 6.4.1 The different places allowed to secure or move around

ELEMENT 6.5 The importance of using work positioning

Training Staff shall **explain and demonstrate**:

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

ELEMENT 6.6 User Inspection

Training Staff shall **explain and demonstrate**:

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

Lesson 7 Backup systems for exercises

ELEMENT 7.1 Types of backup systems

Training Staff shall **explain and demonstrate**:

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

ELEMENT 7.2 Different allowed maximum angles

Training Staff shall **explain and demonstrate**:

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

ELEMENT 7.3 How to apply backup systems correctly to the harness

Training Staff shall **explain and demonstrate**:

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

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

Training Staff shall **explain and demonstrate**:

- 7.4.1 The different places allowed to secure backup systems

ELEMENT 7.5 The importance of using backup systems

Training Staff shall **explain and demonstrate**:

- 7.5.1 The importance of using backup systems for exercises

ELEMENT 7.6 User inspection

Training Staff shall **explain and demonstrate**:

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

Lesson 8 Practical exercises

ELEMENT 8.1 Demonstrate correct use of fall arrest systems

Delegates shall **practise and demonstrate**:

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

ELEMENT 8.2 Demonstrate correct use of work positioning lanyards

Delegates shall **practise and demonstrate**:

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

ELEMENT 8.3 General understanding and use of all equipment

Delegates shall **practise and demonstrate**:

- 8.3.1 General understanding and use of all equipment

Lesson 9 Workshop: risks/hazards

ELEMENT 9.1 How Delegates use the BST Working at Heights course

Delegates shall **practise and demonstrate**:

- 9.1.1 How to use the BST Working at Heights course in a wind turbine environment
(1) Discuss and explain multiple perspectives acquired through group discussions

Note:

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

Lesson 10 Emergency procedures

ELEMENT 10.1 Contents of an evacuation kit

Training Staff shall **explain and demonstrate**:

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

ELEMENT 10.2 Safe and correct evacuation

Training Staff shall **explain and demonstrate**:

- 10.2.1 A safe and correct evacuation, which shall include
- (1) Attaching the evacuation device
 - (2) Fastening the device to the harness
 - (3) Removing the escape hatch door
 - (4) Deploying the rope bag and inspecting for knots/ length
 - (5) Sitting in the open hatch and putting tension on the rope
 - (6) Holding onto the rope while getting out of the hatch
 - (7) Evacuating to ground level
 - (8) Disconnecting the evacuation device

ELEMENT 10.3 Preparing equipment for use

Training Staff shall **explain and demonstrate**:

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

ELEMENT 10.4 Safe behaviour

Training Staff shall **explain and demonstrate**:

- 10.4.1 Safe behaviour in connection with evacuation

Delegates shall **demonstrate**:

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

* The height shall be a minimum of 6.75m

Lesson 10 Notes

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

Lesson 11 PPE review

ELEMENT 11.1 The individual parts of the PPE equipment

Delegates shall explain knowledge of:

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

Lesson 12 Rescue Devices

ELEMENT 12.1 The individual parts of different rescue devices

Training Staff shall explain and demonstrate:

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

Lesson 13 Suspension trauma

ELEMENT 13.1 Suspension trauma

Training Staff shall explain and demonstrate:

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

Lesson 14 Rescue exercises

ELEMENT 14.1 Rescue situations in wind turbines

Training Staff shall explain and demonstrate:



14.1.1 How to approach rescue situations in wind turbines

ELEMENT 14.2 Safe and correct rescue

Training Staff shall **explain and demonstrate**:

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

The exercises shall include:

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

ELEMENT 14.3 Correct usage of rescue devices

Training Staff shall **explain and demonstrate**:

14.3.1 Correct usage of rescue devices, including:

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

ELEMENT 14.4 Correct usage of anchorage points

Training Staff shall **explain and demonstrate**:

14.4.1 Correct usage of anchorage points

ELEMENT 14.5 Correct behaviour on the ladder with PPE

Training Staff shall **explain and demonstrate**:

14.5.1 Correct behaviour on ladder with PPE

Delegates shall **demonstrate**:

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



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

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

Formal assessment of knowledge (see Section 1.7)

Lesson 14 Notes

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

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

Lesson 15 Evaluation

ELEMENT 15.1 Summary

Training Staff shall:

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

ELEMENT 15.2 Evaluation

Delegates shall:

- 15.2.1 Conduct a written evaluation

Training Staff shall:

15.2.2 Give necessary feedback on the written evaluations

ELEMENT 15.3 Certificates

Training Staff shall:

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

Notes:

The course is summarised and ended. At the end of the course the participants are asked to share their new knowledge and to spread the “GWO-rescue-spirit” to their colleagues.

Another purpose is to allow participants to both orally and in written form evaluate their instructors and the content of the course. Finally, the certificates are handed out.

Section 2 - Resources for BST Working at Heights

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

2.1 Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation.

Training Staff shall be:

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

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

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

2.2 Trainer/Delegate Ratio

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

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

2.3 Facilities

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

2.4 Theory training facilities

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

2.5 Practical training facilities

Shall be designed to enable each Delegate to individually and/ or as part of a team, see, hear and practise the taught material.

Note:

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

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

The Training Provider shall hold the required permits to operate the facilities.

2.6 Equipment

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

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

Europe

(1) Harness, according to:

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

(2) Work restraint lanyards, according to:

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

(3) Fall arrest, according to:

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

(4) Helmets, according to:

- EN397 + A1 (Industrial safety helmets)

(5) Vertical fall arrest system, according to:

- PrEN353-1 (Personal fall protection equipment - Guided type fall arresters including an anchor line - Part 1: Guided type fall arresters including a rigid anchor line)
- Additional approval according to VG11 report CNB/P/11.073*

*Today there are no approved standards ensuring compliance with the PPE Directive, since prEN353-1 is not an approved standard and is not expected to be approved before 2015/16 during this transition period tests outlined by VG11 in report CNB/P/11.073 is the base for the Notified Bodies approval. With the new version of prEN353, new tests could be necessary.

(6) Vertical fall arrest system, according to:

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

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

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

(8) Anchor points, according to:

- EN795 (Personal fall protection equipment - Anchor devices)

(9) Slings, according to:

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

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

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

(11) Evacuation/ Rescue devices, according to:

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

(12) Aluminium ladders, according to:

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

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

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

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

Section 3 - Administration and certification

3.1 Delegate performance assessment

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



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

3.2 Validity

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

3.3 Certification

Training Providers are responsible for issuing a certificate directly to the Delegate upon completion of the training programme and to the sponsoring company when required. Each certificate shall indicate that the Delegate has been assessed according to the learning outcomes and shall contain the following:

- (1) Training Provider's name
- (2) Full GWO course title stating that it is GWO approved
- (3) Delegate's name
- (4) Type of equipment used in course and maximum training height
- (5) Course dates
- (6) Expiry date
- (7) Training Provider's signature

Note: This course is not designed to test the Delegate's capability and aptitude for working at heights. However, a climb to a higher height than the minimum height stated in this Standard can be an indicator of the Delegate's capability and aptitude to work at heights. The maximum height used during the training must be stated on the certificate.

3.4 Records

The Training Provider shall keep a record of the Delegates that have completed the BST Working at Heights Module for a minimum period of **5 years**.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any Delegate by name.

3.5 Measures

The Trainer keeps the Control Measures Forms until the completion/ evaluation of this BST Module. If a Delegate fails to meet the demands, they shall attend a new BST Working at Heights Module.

3.6 Control Measures

Please find the Control Measures Form on next page.

Control Measures

Name: _____

Course: BST Working at Heights Module

Date: _____

Training Provider: _____

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

Demonstrates correct and safe Manual Handling in exercise scenario					
Knowledge and Understanding					
Applies subject knowledge correctly in given scenario					
Demonstrates understanding of subject					
Total Marks 0-9 Pass 10-27 Fail					

Instructor: _____

<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL
--------------------------------------	--------------------------------------

The Practical Assessment Measures Form is a final evaluation tool for the instructors to assess Delegates during practical elements. It allows measurement of the number of violations in regard to safety, competency, or attitude. It 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 when a Delegate fails the Module.

Title:

Medical Self-Assessment

Issued by:



Unrestricted

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

This signed Medical Self-Assessment must be returned to the Training Provider's Representative/Responsible prior to the start of the training course.

Full name as stated in passport	Company
---------------------------------	---------

The following conditions could pose a risk, when you actively participate in GWO training
Asthma or other respiratory disorders
Epilepsy, blackouts or other fits
Angina or other heart complaints
Vertigo or inner ear problems (difficulty with balance)
Claustrophobia/Acrophobia (fear of enclosed area/height)
Blood pressure disorder
Diabetes
Pacemaker or implanted defibrillator
Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility
Known allergies (E.g. bee, wasps or spider stings / bites)
Recent surgery
Any other medical condition or medication dependency that could affect climbing or physical impact of climbing

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

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training.

I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training.

I hereby agree: should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Signature _____ **Date** _____



**GLOBAL WIND ORGANISATION
STANDARD**

**Basic Safety Training (BST)
(Offshore)**

SEA SURVIVAL

**Version 6
12 March, 2014**

Foreword

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

This Standard has been developed in response to the demand for recognisable Basic Safety Training (BST) in the industry. The development of this Standard has been prepared in co-operation between the members of GWO. This work is based on risk assessments and factual incident/accident statistics within the industry pertaining to the installation, service and maintenance of wind turbine generators.

The objective of this Standard is to develop common industry training and best practise Standards for health and safety as a vital and necessary way forward to reducing risks for personnel in the wind industry working on site and to reducing environmental risks across Europe and the globe.

This Standard describes the requirements for Basic Safety Training in the wind industry that are recommended by GWO. Where national legislation sets higher requirements for the training, the Training Provider shall incorporate these requirements 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.. Additional training may be required due to company or country specific requirements.

GWO recommends a company specific Basic Safety Introduction and Technical Safety Training as additional training.

Editorial and approval

The final editorial and approval of this Standard has been conducted by the GWO Steering Committee.

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 Generators, sub stations, etc.) shall complete Basic Safety Training courses relevant for their assignments. All work shall 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 this certificate as possessing the required knowledge to stop an unsafe work situation.

Table of Contents

SEA SURVIVAL	154
FOREWORD	155
EDITORIAL AND APPROVAL	156
ACKNOWLEDGEMENT	156
TABLE OF CONTENTS	157
LIST OF ABBREVIATIONS	159
INTRODUCTION	160
SECTION 1 - THE BST SEA SURVIVAL MODULE	160
1.1 DURATION OF THE BST SEA SURVIVAL MODULE	160
1.2 TARGET GROUP	160
1.3 DELEGATE PREREQUISITES FOR THE BST SEA SURVIVAL MODULE	161
1.4 PHYSICAL DEMANDS OF THE BST SEA SURVIVAL MODULE	161
1.5 AIMS AND OBJECTIVES OF THE BST SEA SURVIVAL MODULE	161
1.6 LEARNING OUTCOMES OF THE BST SEA SURVIVAL MODULE	162
<i>Lesson 1 Introduction</i>	<i>162</i>
<i>Lesson 2 Legislation</i>	<i>163</i>
<i>Lesson 3 Exposure, Hypothermia and Drowning</i>	<i>163</i>
<i>Lesson 4 Life Saving Appliances and PPE</i>	<i>164</i>
<i>Lesson 5 Safe transfer</i>	<i>164</i>
<i>Lesson 6 Installations, vessels and WTGs</i>	<i>164</i>
<i>Lesson 7 Man Over Board</i>	<i>165</i>
<i>Lesson 8 SAR and GMDSS</i>	<i>165</i>
<i>Lesson 9 Practical sea survival</i>	<i>165</i>
<i>Lesson 10 Transfer practical</i>	<i>166</i>
<i>Lesson 11 Evaluation</i>	<i>166</i>
1.7 DELEGATE PERFORMANCE ASSESSMENT	166
BST SEA SURVIVAL MODULE TIME TABLE	168
1.9 ELEMENTS, BST MODULE SEA SURVIVAL	169
<i>Lesson 1 Introduction</i>	<i>169</i>
ELEMENT 1.1 Safety instructions and emergency procedures.....	169
ELEMENT 1.2 Facilities	169
ELEMENT 1.3 Introduction	169
ELEMENT 1.4 Scope and main objective	170
ELEMENT 1.5 On-going assessments.....	170
ELEMENT 1.6 Motivation	170
<i>Lesson 2 Legislation</i>	<i>170</i>

ELEMENT 2.1	Global legislation.....	170
ELEMENT 2.2	National legislation	171
Lesson 3	<i>Exposure, Hypothermia and Drowning</i>	171
ELEMENT 3.1	Exposure	171
ELEMENT 3.2	Hypothermia	171
ELEMENT 3.3	Drowning.....	171
Lesson 4	<i>Life Saving Appliances and PPE</i>	171
ELEMENT 4.1	Personal LSA and PPE.....	171
ELEMENT 4.2	Collective LSA.....	172
Lesson 5	<i>Safe transfer</i>	172
ELEMENT 5.1	Hazards	172
ELEMENT 5.2	Transfer vessels.....	172
ELEMENT 5.3	Safe transfers from dock to vessel.....	172
ELEMENT 5.4	Safety introductions on-board.....	172
ELEMENT 5.5	Safe transfers from vessel to WTG.....	172
ELEMENT 5.6	Safe transfer from vessel to vessel.....	173
Lesson 6	<i>Installations, vessels and WTG</i>	173
ELEMENT 6.1	Contingency plans.....	173
Lesson 7	<i>Man Over Board</i>	173
ELEMENT 7.1	Man Over Board.....	173
Lesson 8	<i>SAR and GMDSS</i>	173
ELEMENT 8.1	SAR.....	173
ELEMENT 8.2	GMDSS	173
Lesson 9	<i>Practical sea survival</i>	174
ELEMENT 9.1	LSA and PPE.....	174
ELEMENT 9.2	Sea survival techniques.....	174
ELEMENT 9.3	Emergency descent.....	174
ELEMENT 9.4	Life raft.....	175
ELEMENT 9.5	Helicopter rescue from water	175
ELEMENT 9.6	Summary by exercise	176
Lesson 10	<i>Transfer practical</i>	176
ELEMENT 10.1	Dock to vessel	176
ELEMENT 10.2	Vessel to WTG	176
ELEMENT 10.3	Vessel to vessel	177
ELEMENT 10.4	Man over board	177
Lesson 11	<i>Evaluation</i>	177
ELEMENT 11.1	Summary.....	177
ELEMENT 11.2	Evaluation	177
ELEMENT 11.3	Certificates	178

SECTION 2 - RESOURCES FOR BST SEA SURVIVAL..... 178

2.1	STAFF	178
2.2	TRAINER/DELEGATE RATIO	179
2.3	FACILITIES.....	179
2.4	THEORY TRAINING FACILITIES	179
2.5	PRACTICAL TRAINING FACILITIES	179
2.3	EQUIPMENT	179

SECTION 3 - ADMINISTRATION AND CERTIFICATION 180



3.1	DELEGATE PERFORMANCE ASSESSMENT	180
3.2	VALIDITY	180
3.3	CERTIFICATION	181
3.4	RECORDS	181
3.5	MEASURES.....	181
3.6	CONTROL MEASURES.....	181
CONTROL MEASURES		182

List of abbreviations

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
PFPE	Personal Fall Protective Equipment
SAR	Search and Rescue
WTG	Wind Turbine Generator
MOB	Man Over Board
SART	Search and Rescue Transponder
GMDSS	Global Maritime Distress and Safety System
PLB	Personal Locating Beacon
SRL	Self-Retractable Lifeline

Introduction

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

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

Section 1 - The BST Sea Survival Module

1.1 Duration of the BST Sea Survival Module

The optimal total time for completing this BST Sea Survival Module is estimated to be **3 x 4 hours**, including meals and breaks.

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

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

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

1.2 Target group

Personnel working offshore in the wind industry or related fields needing to obtain their GWO BST Sea Survival Module certificates.



1.3 Delegate prerequisites for the BST Sea Survival Module

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

Training Providers shall have a procedure that requires Delegates to sign a statement (see Appendix 1A, Suggestion for Medical Statement from GWO) stating that they are medically fit to participate in the safety training and that they do not suffer from any medical illness or are under the influence of any narcotic substance or alcohol.

Delegates' signatures shall be collected prior to the start of the safety training course.

1.4 Physical demands of the BST Sea Survival Module

BST Modules may potentially be physically demanding.

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

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

1.5 Aims and objectives of the BST Sea Survival Module

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

This BST Sea Survival Module shall ensure that:

- (1) The Delegates are able to demonstrate knowledge of dangers and symptoms related to hypothermia and drowning
- (2) The Delegates are able to demonstrate understanding of the advantages and limitations of the different Life Saving Appliances (LSA), Personal Protective Equipment (PPE) and Personal Fall Protective Equipment (PFPE) commonly used in the offshore wind energy industry and are able to wear and use them accordingly
- (3) The Delegates are able to demonstrate safe transfer from vessel to dock, vessel to foundation and vessel to vessel
- (4) The Delegates are able to demonstrate knowledge of the emergency and safety procedures on installations, vessels and WTG
- (5) The Delegates are able to demonstrate knowledge of Search and Rescue (SAR) and Global Maritime Distress and Safety System (GMDSS)
- (6) The Delegates are able to demonstrate recovery and First Aid treatment of a “man over board”
- (7) The Delegates are able to demonstrate evacuation from a mock WTG to the water by means of rescue device
- (8) The Delegates are able to demonstrate individual and collective survival techniques at sea

1.6 Learning outcomes of the BST Sea Survival Module

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

Lesson 1 Introduction

15 min.

The aim of this 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 during the course.

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

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

To successfully complete this BST Module, Delegates shall 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 this lesson is to give the Delegates the needed knowledge and skills to understand the importance of correct clothing and conduct in an offshore wind environment, detect and treat the various stages of hypothermia and drowning related to the various exposures to the human body in an offshore wind environment.

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

- (1) Understanding of the human body's reaction to the exposure to different offshore environments and what precautions to take
- (2) Understanding of how to detect the symptoms of drowning, including 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 this lesson is to give the Delegates the needed knowledge and skills to recognise the advantages and limitations of personal LSA and PPE and usage in a correct and safe manner.

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

- (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 this lesson is to give the Delegates the needed knowledge and skills to recognise the hazards of transfer and take the correct preventive measures into account by following procedures and use the personal LSA and PPE in a correct and safe manner.

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

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

Lesson 6 Installations, vessels and WTGs

25 min.

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

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



- (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 this 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 BST Module, Delegates shall be able to demonstrate:

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

Lesson 8 SAR and GMDSS

15 min.

The aim of this lesson is to give the Delegates the needed knowledge related to GMDSS and SAR organisations. This will enable the candidates to understand and act accordingly to enhance their efficiency and response time of the SAR operation and thereby their own evacuation and rescue.

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

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

Lesson 9 Practical sea survival

200 min.

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

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

- (1) Demonstrate correct donning and use of LSA and PPE (by doing so be able to perform an effective buddy check)

- (2) Demonstrate a safe evacuation from a mock 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 an emergency at sea
- (5) Demonstrate correct behaviour related to own rescue from water to helicopter without assistance from helicopter rescue swimmer
- (6) Demonstrate the needed skills to survive an emergency at sea both by own means and in cooperation with others

Lesson 10 Transfer practical

190 min.

To successfully complete this BST Module, Delegates shall 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 (Delegates shall demonstrate the skills to assist in the recovery of others)

Lesson 11 Evaluation

15 min.

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

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

- (1) Active participation in the evaluation

1.7 Delegate Performance Assessment

Assessment of learning outcomes:

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

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

- (1) Section 1.9 - Elements 9.1, 9.2, 9.3, 9.4 and 9.5 (recommended these elements are combined into one cohesive scenario as described in element 9.6)
- (2) Section 1.9 - Elements 10.1, 10.2, 10.3 and 10.4

The formal evaluation of knowledge of above scenarios shall be in accordance with the Practical Assessment Measures in Section - 3 (Measures).

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

BST Sea Survival Module time table

The order in which the elements of this BST 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	Scope and main objectives	
		1.5	On-going assessments (Control Measures)	
		1.6	Motivation	
2	Legislation	2.1	Global legislation	
		2.2	National legislation	
		TOTAL		
3	Exposure, Hypothermia and Drowning	3.1	Exposure	
		3.2	Hypothermia	
		3.3	Drowning	
		TOTAL		
4	Life Saving Appliances and PPE	4.1	Personal LSA and PPE	
		4.2	Collective LSA	
		TOTAL		
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	
6	Installations, vessels and WTG	6.1	Contingency plans	
		TOTAL		
7	Man Over Board	7.1	Man Over Board	
		TOTAL		
8	SAR and GMDSS	8.1	SAR	
		8.2	GMDSS	
		TOTAL		
9	Practical sea survival	9.1	LSA and PPE	
		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	605 min.

1.9 Elements, BST Module Sea Survival

Lesson 1 Introduction

ELEMENT 1.1 Safety instructions and emergency procedures

Training Staff shall **explain**:

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

ELEMENT 1.2 Facilities

Training Staff shall **explain**:

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

ELEMENT 1.3 Introduction

Training Staff shall **give**:

- 1.3.1 A short introduction, including their backgrounds as instructors

Delegates shall **give**:

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

Training Staff shall **explain**:

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

ELEMENT 1.4 Scope and main objective

Training Staff shall **explain**:

- 1.4.1 Scope and main objectives of this BST Module

ELEMENT 1.5 On-going assessments

Training Staff shall **explain**:

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

ELEMENT 1.6 Motivation

Training Staff shall **explain**:

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

Lesson 2 Legislation

ELEMENT 2.1 Global legislation

Training Staff shall **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 shall **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 shall **explain**:

- 3.1.1 Different types of exposures and

ELEMENT 3.2 Hypothermia

Training Staff shall **explain and demonstrate**:

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

Delegates shall **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 shall **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 shall **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 shall **explain**:

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

Lesson 5 Safe transfer

ELEMENT 5.1 Hazards

Training Staff shall **explain**:

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

ELEMENT 5.2 Transfer vessels

Training Staff shall **explain**:

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

ELEMENT 5.3 Safe transfers from dock to vessel

Training Staff shall **explain**:

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

ELEMENT 5.4 Safety introductions on-board

Training Staff shall **explain**:

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

ELEMENT 5.5 Safe transfers from vessel to WTG

Training Staff shall **explain**:

- 5.5.1 Safe transfer from vessel to WTG and back including:

- (1) Use of twin fall arrest lanyards
- (2) Use of Self-Retractable Lifeline (SRL)

ELEMENT 5.6 Safe transfer from vessel to vessel

Training Staff shall **explain**:

- 5.6.1 Safe transfer from vessel to vessel

Lesson 6 Installations, vessels and WTG

ELEMENT 6.1 Contingency plans

Training Staff shall **explain and demonstrate**:

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

Lesson 7 Man Over Board

ELEMENT 7.1 Man Over Board

Training Staff shall **explain**:

- 7.1.1 MOB procedures on installation, vessel or WTG, including 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 of use

Lesson 8 SAR and GMDSS

ELEMENT 8.1 SAR

Training Staff shall **explain and demonstrate**:

- 8.1.1 SAR organisation and joint SAR operations

ELEMENT 8.2 GMDSS

Training Staff shall **explain and demonstrate**

- 8.2.1 GMDSS including transponders and locators
(1) Emergency Positioning Indicating Radio Beacon (EPIRB)
(2) Search and Rescue Transponder (SART)

(3) Personal Locating Beacon (PLB)

8.2.2 Actions to enhance detection

Lesson 9 Practical sea survival

ELEMENT 9.1 LSA and PPE

Delegates shall **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 shall **explain and demonstrate**

- 9.2.1 Sea survival techniques
 - (1) Safe entry into the water from a height
 - (2) Heat Escape Lessening Posture (H.E.L.P.)
 - (3) Individual swimming techniques
 - (4) Collective swimming techniques
 - (5) Collective techniques to prevent hypothermia
 - (6) Techniques to enhance chances of being spotted

Delegates shall **demonstrate**:

- 9.2.2. Sea survival techniques
 - (1) Safe entry into the water from a height
 - (2) H.E.L.P.
 - (3) Individual swimming techniques
 - (4) Collective swimming techniques
 - (5) Collective techniques to prevent hypothermia
 - (6) Techniques to enhance chances of being spotted

ELEMENT 9.3 Emergency descent

Training Staff shall **explain and demonstrate**:

- 9.3.1 Evacuation from WTG by descent into the water including:
 - (1) Pre-use inspection
 - (2) Correct fitting of harness
 - (3) Attachment
 - (4) Descent into water

- (5) Inflation of lifejacket
- (6) Detachment in the water

Delegates shall **demonstrate**:

- 9.3.2 Evacuation from WTG by descent into the water including:
 - (1) Pre-use inspection
 - (2) Correct fitting of harness
 - (3) Attachment
 - (4) Descent into water
 - (5) Inflation of lifejacket
 - (6) Detachment in the water

ELEMENT 9.4 Life raft

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

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

Delegates shall **demonstrate**:

- 9.5.2 Helicopter rescue from water as demonstrated by training Staff

ELEMENT 9.6 Summary by exercise

Training Staff shall **explain**:

- 9.6.1 Safety procedures and briefing of the exercise

Delegates shall **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 shall 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 shall **explain and demonstrate**:

- 10.1.1 Safe transfer of self and equipment from dock to vessel

Delegates shall **demonstrate**:

- 10.1.2 Safe transfer of self and equipment from dock to vessel

ELEMENT 10.2 Vessel to WTG

Training Staff shall **explain and demonstrate**:

- 10.2.1 Safe transfer of self and equipment from vessel to WTG and back using:
 - (1) Twin fall arrest lanyards
 - (2) SRL

Delegates shall **demonstrate**:

- 10.2.2 Two safe transfers of self and equipment from vessel to WTG and back:

- (1) First transfer by using a twin fall arrest lanyard
- (2) Second transfer by the means of SRL

ELEMENT 10.3 Vessel to vessel

Training Staff shall **explain and demonstrate**:

- 10.3.1 Safe transfer from vessel to vessel while making way

Delegates shall **demonstrate**:

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

ELEMENT 10.4 Man over board

Training Staff shall **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 shall **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 shall:

- 11.1.1 Summarise the BST Module and give the Delegates final feedback

ELEMENT 11.2 Evaluation

Delegates shall:

11.2.1 Conduct a written evaluation

Training Staff shall:

11.2.2 Give necessary feedback of the written evaluations

ELEMENT 11.3 Certificates

Training Staff shall:

11.3.1 Hand out certificates and ensure all Delegates are registered with the correct personal information on the certificate

Section 2 - Resources for BST Sea Survival

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

2.1 Staff

Training Staff shall possess appropriate qualifications and experience to ensure that all training and supportive activities are carried out in accordance with current legislation.

Training Staff shall be:

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

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

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

2.2 Trainer/Delegate Ratio

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

Module	Session	Trainer - Delegate Ratio
BST Sea Survival Module	Theory	1:12
	Practical	3:12

2.3 Facilities

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

2.4 Theory training facilities

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

2.5 Practical training facilities

Shall be designed to enable each Delegate to individually and/ or as part of a team, see, hear and practise the taught material.

Note:

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

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

The Training Provider shall hold the required permits to operate the facilities.

2.3 Equipment

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

- (1) Rigid lifejackets
- (2) Inflatable lifejackets

- (3) Survival suits
- (4) Helmets
- (5) Inflatable life raft with equipment
- (6) Helicopter rescue sling
- (7) Cradle
- (8) Rescue net
- (9) Rescue device
- (10) Safety harnesses
- (11) Twin fall arrest lanyards
- (12) SRL
- (13) PPE

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

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

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

Section 3 - Administration and certification

3.1 Delegate performance assessment

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

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

3.2 Validity

The maximum interval between successful completions of the BST Sea Survival Module is **48 months**.

3.3 Certification

Training Providers are responsible for issuing a certificate directly to the Delegate upon completion of the training programme and to the sponsoring company when required. Each certificate shall indicate that the Delegate has been assessed according to the learning outcomes and shall contain the following:

- (1) Training Provider's name
- (2) Full GWO course title stating that it is GWO approved
- (3) Delegate's name
- (4) Course dates
- (5) Expiry date
- (6) Training Provider's signature

3.4 Records

The Training Provider shall keep a record of the Delegates that have completed the BST Sea Survival Module for a minimum period of **5 years**.

Upon request from GWO or any of the members of GWO, the Training Provider shall be able to verify the training and competence records of any Delegate by name.

3.5 Measures

The Trainer keeps the Control Measures Forms until the completion/ evaluation of this BST Module. If a Delegate fails to meet the demands, they shall attend a new BST Sea Survival Module.

3.6 Control Measures

Please find the Control Measures Form on next page.

Control Measures

Name: _____

Course: BST Sea Survival Module

Date: _____

Training Provider: _____

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

Demonstrates correct and safe Manual Handling in exercise scenario					
Knowledge and Understanding					
Applies subject knowledge correctly in given scenario					
Demonstrates understanding of subject					
Total Marks 0-9 Pass 10-27 Fail					

Instructor: _____

<input type="checkbox"/> PASS	<input type="checkbox"/> FAIL
--------------------------------------	--------------------------------------

The Practical Assessment Measures Form is a final evaluation tool for the instructors to assess Delegates during practical elements. It allows measurement of the number of violations in regard to safety, competency, or attitude. It 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 when a Delegate fails the Module

Title:

Medical Self-Assessment

Issued by:



Unrestricted

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

This signed Medical Self-Assessment must be returned to the Training Provider's Representative/Responsible prior to the start of the training course.

Full name as stated in passport	Company
---------------------------------	---------

The following conditions could pose a risk, when you actively participate in GWO training
Asthma or other respiratory disorders
Epilepsy, blackouts or other fits
Angina or other heart complaints
Vertigo or inner ear problems (difficulty with balance)
Claustrophobia/Acrophobia (fear of enclosed area/height)
Blood pressure disorder
Diabetes
Pacemaker or implanted defibrillator
Arthritis, osteoarthritis or other muscular/ skeletal disorders affecting mobility
Known allergies (E.g. bee, wasps or spider stings / bites)
Recent surgery
Any other medical condition or medication dependency that could affect climbing or physical impact of climbing

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

I hereby confirm that there is no factor that will inhibit or affect my participation in GWO Training.

I agree to follow all instructions from the appointed Instructor for the duration of the GWO Training.

I hereby agree: should there be any doubt regarding my medical fitness, the training provider will stop the training and seek a physician's advice.

Signature _____ **Date** _____