

## Attendant profile

Attendant profile: WTG Service technicians

## Course duration

10 days, 74 lessons

## Pre-requisites for participation

To attend training course the participant must hold a certificate from one of the following:

- Global Wind Academy Level 2 or Global Blade Service Level 2
- Vestas basic training M7000
- Siemens Blade B

Alternatively same level of qualification gained from blade service in the field or from blade production.

Knowledge and skills must be proven by a qualification test prior to joining the course.

## Course outcome

To qualify and certify knowledge and skills of technicians to undertake service and repair work on various types of WTG blades in accordance to:

- Global Blade Service Standard
- Service instructions from OEM.

## Objectives

After the training, the participant will be able to:

- Define common root causes for defects, damages' and wear and tear.
- Understand information for service from:
  - Service Work Instructions
  - Technical Data Sheet
  - Production drawings
- Carry out repairs according to OEM service and repair work instructions
- Carry out repairs of polyester or epoxy based laminate with fibreglass or carbon reinforcement.
- Carry out repairs on blade structure for various types of blades Including:
  - Shell laminate and core all positions
  - Structural shell laminate

- Spar and web laminate
- Bonding of blade structure
- Reconstruction of lightning protection system
- Master relevant processes like bonding, hand layup, vacuum consolidation, infusion and prepreg, for repairs under field conditions on remote sites
- Document and report service and repair work carried out on site

## Training method

Theoretical training  
Practical exercises

## Success criteria

Minimum 80% correct answers on theoretical test  
Approval of practical test

## Training modules

### 1 Training information

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- Practical information on the training course
- Presentation of participants
- Reason for training
- Objectives for training course
- Success criteria

### 2 Blade construction

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- Materials for blades
- Stress on blades
- Various blade structures
- Test of materials and blades
- Terms and definitions

### 3 Prepreg

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- Materials
- Handle prepare and layup
- Process and controlling
- Manual process control
- Hot bonders
- Technical data

#### **4 Materials for blades**

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- Composite materials
- Reinforcement
- Matrix
- Core materials
- Coating and filler
- Topcoat paint

#### **5 Health and safety**

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- Health risk from prepreg
- Health risk from fibre glass and carbon dust
- Personnel protective equipment
- Handling and storing chemicals on site
- Handling of waste

#### **6 Bonding**

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- Bonded joints
- Defects and terms
- Strength and testing

#### **7 Defects and damages**

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- Production defects
  - Damages
  - Wear and tear
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## 8 Inspection and categorizing

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- Inspection methods
- Categorizing

## 9 Documentation

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- Inspection report
- Material documentation
- Process documentation
- Environment documentation
- Blade service repair report

## 10 Repair technique

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- Shell repair/replacement
- Spar
- Lightning system repair
- Laminate repair options
- Web repair
- Bonded parts
- Root cracks

## 11 Field repair

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- On ground
- In air
- Equipment

## 12 Handling of blades

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- Blade handling

### **13 Practical exercises**

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- Left blank on purpose

### **14 Tests**

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- Theoretical test representing objectives for training course
- Practical test representing skill level for training course