OPITO APPROVED STANDARD

Offshore Crane Operator
Stage 1 (Introductory) Training

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The contents of this document were developed by an industry workgroup facilitated and supported by OPITO. The workgroup consisted of representation from a cross-section of oil and gas industry employers, discipline experts working within the industry and members of the OPITO Approved Training network.

This standard has been verified and accepted through the governance and integrity management model for OPITO standards.

Guidance on this standard is available by contacting OPITO at: Standards enquiries

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### Record of Changes to Standard

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Introduction and Competence Route

OPITO was tasked by industry to develop a robust minimum standard for training and competence assessment for the offshore crane operator role. An industry workgroup which comprised of relevant crane operations and lifting experts agreed on a three-stage training and competence route which took into consideration individuals who were new to crane operations as well as experienced crane operators.

These offshore crane operator standards apply to operators of the main types of offshore cranes which can undertake a range of crane lifting operations, which may include: lifts on offshore installations, subsea lifts, diving support vessels lifts, well intervention vessels lifts and offshore construction vessels lifts.

This standard specifies OPITO Offshore Crane Operator Stage 1 (Introductory) Training only.

The OPITO Offshore Crane Operator’s training, competence assessment and re-assessment is comprised of three key stages.
The three key stages are set out below:
Offshore Crane Operator (OCO) Key Stages

**OPITO OCO Stage 1: The Introductory Training Programme**

This programme provides introductory training for individuals that have little or no crane operating experience. Delegates successfully completing the Introductory Training Programme will be awarded an OPITO Stage 1 Offshore Crane Operator Introductory Training certificate; this entitles the delegate to progress to OCO Stage 2 Training followed by supervised OCO Stage 2 workplace experience.

This training programme does **not** deem the successful delegate competent to operate offshore cranes unsupervised. The OCO Stage 1 Training certificate has no expiry but delegates wishing to progress to Stage 2 must undertake OCO Stage 2 Training within twelve months otherwise they will be required to repeat OCO Stage 1 Training.

**OPITO OCO Stage 2: Training, supervised workplace experience and assessment**

OCO Stage 2 Training, which is more advanced training than Stage 1, must be undertaken **within 12 months** of gaining a Stage 1 OPITO Offshore Crane Operator Certificate. Crane operators with verifiable experience can opt to undertake OCO Stage 2 Training without completing Stage 1 Training. Stage 2 training must be undertaken before undertaking Stage 2 workplace experience.

The OCO Stage 2 Workplace Experience part of the programme requires the offshore crane operator candidate to complete a series of **supervised** workplace tasks in order to gain relevant experience. The candidate must complete a log book record of the supervised crane operator tasks. Candidates that have completed the Stage 2 log book requirements within **two years** of successful completion of OCO Stage 2 Training will be eligible to undertake the next stage of the programme, which is the OCO Stage 2 Competence Assessment programme. The OCO Stage 2 Training Programme will have to be repeated if the Stage 2 Logbook isn’t completed within the two-year time period.

OCO Stage 2 Competence Assessment programme: Candidates will be assessed against specific criteria for conducting in-board lifts (deck lifts). Successful candidates will be awarded with an OPITO OCO Stage 2 Competence Assessment certificate and become certified to conduct **unsupervised** in-board (deck lifts) on fixed, floating structures and vessels which includes loading or offloading from a floating structure or vessel when moored adjacent to a quayside. The certificate is valid for 2 years.

OCO Stage 2 Competence Reassessment programme: OPITO-certified Stage 2 offshore crane operators can maintain their OPITO OCO Stage 2 Competence Assessment certification by successfully completing a reassessment within two years of their initial Stage 2 assessment. Each successive certificate is valid for 2 years.

Continued.
Offshore Crane Operator (OCO) Key Stages continued.

**Note 1**: Experienced Stage 2 non-OPITO-certified offshore crane operators can become OPITO OCO Stage 2-certified by successfully completing the OPITO OCO Stage 2 Reassessment programme.

**Note 2**: Experienced onshore crane operators and personnel that have undergone the equivalent of the OPITO OCO Stage 1 Training (as a minimum), can start their OPITO certified training and competence programme at OCO Stage 2 Training and Assessment programme – provided they have the relevant evidence of the equivalent training.

**OPITO OCO Stage 3: Workplace experience and competence assessment**

OPITO OCO Stage 3 specifies the workplace experience requirement and the assessment process and criteria for conducting **over-side lifts** for three different types of offshore structures:

1. Fixed structures e.g. offshore platforms, jack-up rigs etc.
2. Floating structures e.g. FPSOs, Semi-submersibles and diving support vessels.
3. Deployment and recovery of loads from vessels e.g. well intervention vessels and diving support vessels.

OCO Stage 3 candidates must choose which type of structure they want to complete workplace experience and undertake an assessment for. An OPITO OCO Stage 3 Competence Assessment certificate will be awarded to the successful candidate for one of the three structure types; candidates cannot gain all three certificates at the same time i.e. they must complete workplace experience and undertake an initial assessment programme for one structure type. Should an offshore crane operator want an OPITO Competence Assessment certificate for a different structure type to the one they are certified for, they must complete logged workplace experience and undertake an Initial first assessment programme for that specific structure type.

The OPITO OCO Stage 3 certificate is valid for 2 years. (Each certificate will specify a structure type)

If OPITO-certified Stage 3 offshore crane operators want to maintain OPITO OCO Stage 3 certification, they will need to be reassessed every two years by undertaking an OPITO-approved reassessment programme. The OCO Stage 3 reassessment can be undertaken on a simulator only or a combination of a simulator and actual crane.

**Related OPITO Offshore Crane Operator Standard Documents**

- OPITO Offshore Crane Operator Stage 2 Training Standard
- OPITO Offshore Crane Operator Stage 2 Competence Assessment Standard
- OPITO Offshore Crane Operator Stage 3 Competence Assessment Standard
SECTION A OCO Stage 1 Introductory Training

A.1 OCO Stage 1 Training Target Group

The Offshore Crane Operator Stage 1 Introductory Training Programme is intended for individuals that have little or no crane operating experience and wish to gain theoretical and practical knowledge of offshore crane operations.

A.2 OCO Stage 1 Training Delegate Pre-requisites

There are no delegate pre-requisites for attendance on the OCO Stage 1 Introductory Training Programme; although delegates must provide evidence of a medical/eye test to confirm their depth of vision and that they are not colour blind.
A.3 OCO Stage 1 Training Physical and Stressful Demands

Training activities contained within this Standard may include physically demanding and potentially stressful elements. All personnel who participate in such activities must be physically and mentally capable of participating fully.

OPITO-approved Centres are therefore required, as a minimum, to ensure that prior to participating in practical exercises the delegate or candidate provides written confirmation that they deem themselves physically and mentally capable of undertaking all aspects of the training. Centres must also make the delegate/candidate aware that they must immediately inform the Centre staff if this capability changes – at any time prior to, or during the programme.

Delegates must be advised that they are required to declare any current or pre-existing medical conditions which may be exacerbated by, or impair their ability to complete, the training programme. Should this be the case, the individual may be required to provide an authentic medical certificate issued since any identified medical condition was diagnosed. The OPITO-approved Centre shall keep a record of the delegate’s declaration of fitness in accordance with their document control policy(s) or procedures.

This information, along with summary details of the type of physical activities the delegate/candidate will be asked to perform, will be given to delegates by the OPITO-approved Centre and, if applicable, to their sponsoring company as part of the joining instructions. The responsibility for declaring any known current or pre-existing medical conditions that could have adverse effects to the individual’s state of health while undertaking the training activities lies with the delegate and/or company sponsoring the delegate.

Where doubt exists regarding the fitness of any delegate/candidate, the OPITO-approved Centre should direct the individual to consult a medical officer familiar with the nature and extent of the training.

Note: Practical exercises must be designed and delivered solely to meet this Standard, and must not place on the delegates any physical or mental demands other than those required to meet the Standard.
A.4 OCO Stage 1 Training Aim and Objectives

The aim of the Offshore Crane Operator Stage 1 Training Programme is to provide the delegate, who has little or no previous knowledge or experience in crane operations, with the basic knowledge and skills required of an Offshore Crane Operator.

Note: OCO Stage 1 Training is not a formal assessment of competence, and therefore successful completion of this training by a delegate cannot not be used as an entitlement to operate an offshore crane unsupervised.

The key objectives are:

1. To introduce the delegate to crane operations terminology.
2. To ensure the delegate can identify and explain key elements of relevant legislation.
3. To ensure the delegate understands the role and responsibilities of the offshore crane operator and safety implications attached to that role.
4. To ensure the delegate understands the main crane controls, safety devices, working limitations, associated hazards and safe work practices of an offshore crane operator.
5. To ensure the delegate understands typical crane maintenance and inspection requirements.
6. The delegate to practice operating a crane and crane simulator following a basic lifting plan - after receiving instruction from qualified training staff.
A.5 OCO Stage 1 Training Learning Outcomes

To successfully complete OCO Stage 1 Training, specific learning outcomes must be met by the delegates. The learning outcomes are specified for each of the following modules:

**MODULE 1  Introduction to Offshore Crane Lifting Operations**

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

1. Explain the roles and responsibilities of personnel involved in offshore crane lifting operations.
2. Explain basic crane operations terminology, to include: luffing/jibbing, hoisting and slewing.
3. Identify main crane components, their location on a crane and explain their principle function(s).
4. Explain typical crane inspection criteria, pre-start checks, pre-operational checks, running checks, shutdown procedure, and the recording of same.
5. Explain basic crane principles of stability and configurations.
6. Identify typical crane safety devices and explain their purpose; to include: luff/jibb, hoist and slew limiting systems.
7. Define crane safe working load (SWL) and state how it is identified.
8. Explain basic crane operating principles; to include load charts.
9. Interpret (regionally-recognised) banksman hand signals.
10. State the universal communications protocols and procedures used for handheld radios.
11. How to interpret information from crane rated capacity indicators and explain their how they are used.
12. Explain how to visually inspect the basic condition and spooling of crane wire rope.
13. Identify typical conflicting activities which may affect the lifting operations.
14. Identify environmental conditions liable to affect the lifting operation.
15. Identify safe lifting principles, to include: planning, centering the hook, knowing load weight and load path, load path hazard identification and good communications.
16. Explain crane operating techniques, to include: swing control, height judgement, and control coordination.
MODULE 2 Offshore Crane Operations (Knowledge Learning Outcomes)

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

1. Identify the relevant legislation that applies to crane lifting operations.
2. Identify the key components of a Safe System of Work (SSOW) applicable to crane lifting operations, to include technical, behavioural and procedural systems.
3. Identify typical hazards associated with crane lifting operations.
4. State the purpose of conducting a pre-use inspection of a crane.
5. Identify typical pre-use inspection criteria for offshore cranes.
6. Identify primary methods of crane operations communications.
7. Identify typical documents applicable to crane lifting operations.
8. Explain how a typical lifting operation is planned.
9. Explain the purpose of the lifting operation risk assessment.
10. Explain the key elements of a lifting operation toolbox talk (TBT).
11. Explain why it is important that all personnel involved in the lifting operation know and understand their duties and responsibilities.
12. Identify typical unsafe areas and positions of personnel during a lifting operation.
13. Explain how to check the suitability of laydown areas for the crane load.
14. Explain normal and emergency access and egress routes for the crane operator.

MODULE 2 Offshore Crane Operations (Skills Learning Outcomes)

To successfully complete this module, delegates must be able to demonstrate the following (with continual improvement):

15. Pre-start and pre-operational checks (C & S)
16. Basic crane control with no load on the hook (C & S)
17. Lifting, transferring and placing light loads - with respect to tonnage. (C & S)
18. Lifting, transferring and placing of intermediate loads - with respect to tonnage (C & S)
19. Operating a crane to follow a planned load path avoiding hazards. (C & S)
20. Safe operating techniques whilst operating the crane. (C & S)
21. Good crane control coordination (C & S)
22. Height/distance judgement techniques (C)
23. Slew/Swing control techniques (C & S)
24. Operating three crane control functions simultaneously [luff/jib, hoist and slew] where crane type has capability of simultaneous control function operation. (C & S)
25. Correctly responding to banksman hand signals and radio instructions. (C)
26. Correctly shutdown and making safe [the crane] following a simulated installation emergency alarm. (S)

(C): Crane   (S): Simulator.
A.6 OCO Stage 1 Training Performance Evaluation

Delegates attending the OCO Stage 1 Introductory Training Programme will be given a series of explanations and demonstrations by training staff. Throughout the programme, delegates will be given theory tests, compiled by the approved centre, to check their understanding of the knowledge elements of the Modules - specified in the Learning Outcomes from Section A.5. Tests will be *open book and include a minimum of 50 questions. The test must incorporate a mix of the following question types:

(a) Multiple choice
(b) True/false
(c) A small number of questions that require written answers.

The test pass mark is 80%.

*Open book: delegates can refer to their notes during tests.

Note: For the purpose of delegate performance evaluation, where learning outcomes use the phrase 'delegates must be able to explain': it is acceptable that the delegate can choose the correct explanation from a pre-written list of explanations provided by the OPITO-approved Centre.

Module 2 has practical elements in which the delegates must take an active part to allow them to practice and demonstrate their skills, knowledge and understanding of Offshore Crane Operator Stage 1 principles. Delegate performance in these exercises will be evaluated against relevant Module 2 learning outcomes. Results from theory tests and practical exercises must be fed back to the delegates by the end of training programme.

Training instructors are required to complete the OCO Stage 1 Introductory Training Checklist Record in Appendix 2 of this standard by entering their initials in the LO achieved/not achieved section.

Training instructors must identify any gaps in delegate’s learning and make reasonable effort to address the gaps to help delegates meet the required learning outcomes.

Adequate time must be built into the training programme to allow for performance feedback to the delegate.

If any delegate fails to meet the standard, in the opinion of the training providers and after reasonable tuition, the OCO Stage 1 Introductory Training Programme will need to be repeated at a later date for the delegate to be awarded the certificate.
A.7  OCO Stage 1 Training Duration and Timing

The duration of the Offshore Crane Operator Stage 1 Introductory Training Programme is 40 hours (five days) with an approximate ratio of 30% : 70% theory:practical. Where this training is part of a programme of longer duration the total contact time per day must not exceed 8 hours and the total training day must not exceed 10 hours. The total training day includes contact time, refreshment and meal breaks and travel between training sites where applicable.

A.8  OCO Stage 1 Training Programme

The OCO Stage 1 Training Programme outlined below will assist the delegates in achieving the stated learning outcomes. Training modules and elements must be delivered in a way that progressively builds up the knowledge and skills of the delegate.

The contents in Appendix 1 must be covered at the beginning of the course.

Delegates must be given an explanation of where Offshore Crane Operator (OCO) Stage 1 fits in OPITO’s OCO Training and Competence Framework and timeframes to complete the subsequent OCO Stages.

To make efficient use of time and ensure effective learning: there should, wherever practicable, be an integration of the three phases of explanation, demonstration and practise. Full use must be made of audio/visual aids and course handout material. Training staff must give practical demonstrations for all training activities where delegates are required to practice and demonstrate what they have learned.

Each module must be introduced by the training staff, and include:

(a) **Aim** – The main purpose of the module  
(b) **Learning Outcomes** – What the delegates are expected to learn  
(c) **Timetable** – Training module duration and timing  
(d) **Evaluation** – How delegates will be evaluated and what they will be evaluated against  
(e) **Staff** - Who will be delivering the training and roles of training support staff

The OCO Stage 1 Training Programme consists of the following modules and elements:

**Module 1  Introduction to Offshore Crane Operations**  
Element 1.1  The roles and responsibilities of an offshore lifting operations team  
Element 1.2  The principles of offshore crane operations

**Module 2  Offshore Crane Operations**  
Element 2.1  Legislation, regulations and safe systems of work  
Element 2.2  Preparation for a crane lifting operation  
Element 2.3  Conducting crane lifting operations

**Note:** Module 2 practical elements will be undertaken in both a simulator and a crane.
OCO Stage 1 Training Programme

MODULE 1  Introduction to Offshore Crane Operations

ELEMENT 1.1  The roles and responsibilities of an offshore lifting operations team

1.1.1  Training instructors to explain the roles and responsibilities of personnel a typical offshore lifting operations team

ELEMENT 1.2  The principles of offshore crane operations

Training instructors to explain:

1.2.1  Basic crane operations terminology, to include: luffing/jibbing, hoisting and slewing.
1.2.2  Main crane components; their location on a crane and their principle function(s): A crane model or detailed graphic to be used for illustration.
1.2.3  Typical crane inspection criteria, pre-start checks, pre-operational checks, running checks, shutdown procedure, and the recording of same.
1.2.4  Basic crane principles of stability and configurations.
1.2.5  Crane safety devices, to include; boom, hoist, and slew limiting systems.
1.2.6  Crane safe working loads (SWL) and how SWL is identified.
1.2.7  Crane operating principles, to include load charts.
1.2.8  Regionally-recognised banksman hand signals.
1.2.9  Radio-communication protocols and procedures for controlling crane operations, to include:
   (a)  Pre-use radio checks and tests
   (b)  Channel selection
   (c)  Transmit and receive message protocol
   (d)  Confirming and message clarity
   (e)  Action to take if radio is faulty.
1.2.10  The purpose of crane rated capacity indicators (RCIs) and how to interpret RCI data.
1.2.11  Basic visual inspection of the condition and spooling of a crane wire rope. Delegates to be shown examples of wire ropes in the training room or on an actual crane.
1.2.12  How conflicting activities may affect the lifting operations, to include: proximity and deck hazards.
1.2.13  Environmental conditions liable to affect the lifting operation to include: adverse weather, sea state, visibility and temperature extremes.
1.2.14  Safe lifting principles, to include: planning, centering the hook, knowing the load weight and load path, load path hazard identification and good lifting operation communications.
1.2.15  Crane operating techniques, to include: slew/swing control, height judgement and crane controls coordination.
MODULE 2  Offshore Crane Operations

ELEMENT 2.1  Legislation, regulation and safe systems of work

Training instructors to explain:

2.1.1 Legislative requirements and documentation relevant to offshore crane operations, to include the following:

(a) An overview of relevant health and safety legislation
(b) Lifting Operations and Lifting Equipment Regulations, to include: planning, risk assessing and conducting lifting operations
(c) Awareness of relevant International standards for crane operations.

2.1.2 Key components of Safe Systems of Work (SSOW) and typical documents such as permits, procedures and tool box talk records. SSOW to include an overview of technical, behavioral and procedural systems.

2.1.3 Typical hazards associated with offshore crane operations, to include:

(a) Unsafe areas and positions of people within the lifting operation area
(b) Effects of helicopter activity on crane operations
(c) Environmental conditions
(d) Dynamic forces affecting loads
(e) Lifting dangerous goods
(f) Blind lifting
(g) Proximity hazards
(h) Overloading lifting equipment

The hazards outlined above are to be illustrated using short videos or graphics.

2.1.4 Pre-use inspection of offshore cranes, to include typical inspection criteria.
2.1.5 The primary methods of crane operations communications.
ELEMENT 2.2 Preparation for a crane lifting operation

Training staff to explain and demonstrate:

2.2.1 Planning the lifting operation.
2.2.2 The purpose of risk assessing the lifting operation and key elements of a lifting operation risk assessment.
2.2.3 The key elements of and importance of participating in the toolbox talk (TBT).
2.2.4 How to ensure that all associated personnel are aware of and understand their duties and responsibilities for the lifting operation.
2.2.5 Typical unsafe areas and positions of personnel involved in crane lifting operations.
2.2.6 Crane load laydown area suitability checks.
2.2.7 Establishing normal and emergency crane access and egress for the crane operator.

ELEMENT 2.3 Conducting crane lifting operations

Delegates must be given time to familiarise themselves with the crane controls.

Training staff to provide exercises to enable delegates to demonstrate the following practical elements of crane operations, showing continual improvement under supervision of the instructor:

2.3.1 Pre-start and pre-operational checks (C & S)
2.3.2 Operation of the crane unladen (no load on the hook) to gain familiarisation and confidence of the crane controls and functions (C & S)
2.3.3 Lifting, transferring and placing 1 light loads (with respect to tonnage) within the working range and safe working capacity of the crane. (C & S)
2.3.4 Lifting, transferring and placing 2 intermediate loads (with respect to tonnage) to predetermined areas - within the working range and safe working capacity of the crane (C & S)
2.3.5 Operate the crane following planned load path avoiding proximity hazards and ground hazards (C & S)
2.3.6 Application of safe operating techniques, to include: slew/swing control, height judgement, and crane controls coordination (C & S)
2.3.7 Height/distance judgment techniques (C)
2.3.8 Simultaneous operation of three control functions (Luff/jib, hoist and slew) – where crane type has capability for simultaneous control function operation (C & S)
2.3.9 Correct response to banksman’s hand signals and radio instructions (C)
2.3.10 Correctly shut down and make the crane safe following a simulated installation emergency alarm. (S)

1 Light loads: Approximately 10% of the crane rated capacity.
2 Intermediate loads: Approximately 10-50% of the crane rated capacity.
(C): Crane (S): Simulator.
Loads to be lifted by crane or crane simulator

As a minimum requirement, the loads must include the following:

(a) Cargo carrying units (C)
(b) Tanks or half-heights (C)
(c) Tubular bundles (C)
(d) Single tubular (C)
(e) Scaffolding tubes and boards (C or S)
(f) Drums (C or S)
(g) Cargo nets. (C or S)

(C): Crane      (S): Simulator.
SECTION B  **OCO Stage 1 Refresher Training** – Not Applicable
SECTION C  Resources

In order that this training programme may be delivered successfully it is essential that training staff possess the relevant knowledge and skills and experience required to support the programme and that the appropriate facilities and equipment are in place.

C.1  Staff

Instructional staff will be required to carry out training and evaluate the delegate’s performance. It is important that the staff involved have the appropriate qualifications and experience.

All instructional staff must:

(a) Be occupationally competent i.e. they must hold, as a minimum, a valid OPITO Stage 3 Offshore Crane Operator competence certificate or *an equivalent OCO Stage 3 certificate, and a minimum of 3 years’ experience in the offshore crane operator role.

(b) Have been trained in instructional/training techniques and/or have proven instructing experience.

(c) Be included in an ongoing training and development programme, which ensures they are aware and knowledgeable of all changes to relevant legislation and industry requirements.

*Training Centres must have a working plan to ensure that instructors that hold OCO Stage 3 non-OPITO certificates will become OPITO-approved Stage 3 competent Offshore Crane Operators.

Support roles

All staff will have the appropriate competencies to conduct/assist with the element of training being undertaken.

C.2  Trainer/Delegate Ratio

The maximum number of delegates attending the Offshore Crane Operator Stage 1 Training Programme is six.

The following ratios indicate the maximum number of delegates to be supervised by one instructor at any one time during each activity:

**Instructor: Delegate ratio:**
Theoretical Training: 1:6  
Practical Training: 1:3
C.3 Facilities

The OPITO-approved Training Centre must, as a minimum, comply with the following:

1. **Administration** arrangements to support delegates from booking through registration and training to certification

2. **Theory** training area(s) so designed to enable each delegate to participate fully.

3. **Practical** training areas so designed to accommodate the full working area of the crane operations activities and to enable each delegate to participate fully.

4. **Demonstration areas (including crane simulator)** in which the techniques can be delivered and practised safely during training.

5. **First Aid Facilities**
   Appropriate first aid facilities and equipment as specified in the training centre’s risk assessments, and sufficient staff, trained in the use of the facilities and equipment.

All facilities must be maintained and where appropriate, inspected and tested in accordance with current standards/legislation.

C.4 Equipment

As a minimum, the following equipment is required to meet the stated content of the OCO Stage1 Training Programme:

1. A crane: The actual crane used for the practical exercises must meet the specification detailed in C.5
2. A crane simulator: The crane simulator must meet the specification detailed in section C.5.4
3. Variety of items to be lifted either by the crane or through simulation (refer to Element 2.3 for details), to include the following:
   
   (a) Cargo carrying units
   (b) Tanks or half-heights
   (c) Tubular bundles
   (d) Single tubular
   (e) Scaffolding tubes and boards
   (f) Drums
   (g) Cargo nets.

Risk assessments must be conducted and documented for all training activities. All equipment must be maintained, and where appropriate, inspected and tested in accordance with current standards/legislation, guidance and manufacturers recommendations.
C.5 Crane Specification

A crane and a crane simulator must be used for this OCO Stage 1 Training Programme.

C.5.1 Crane types suitable for Stage 1 Training at onshore centres

Only the following crane types are considered suitable for OCO Stage 1 Training.

1. Pedestal-mounted cranes specifically designed for offshore applications – sometimes also referred to as second and subsequent generation cranes. First generation offshore cranes, or similar types, will be required to comply with the requirements for mobile cranes as detailed in section C.5.3. These cranes must be fitted with a boom of minimum length 30.5 metres.

2. Custom-designed marine cranes located on vessels/ships where these cranes comply with the mobile crane specification as detailed in section C.5.3.

3. Mobile crawler mounted cranes complying with specification detailed in C.5.3.

4. Mobile tyre mounted cranes, fitted with outriggers, complying with specification detailed in C.5.3.

C.5.2 Crane types NOT suitable for Stage 1 Training at onshore centres

1. Tower cranes.
2. Dockside cranes.
4. Shear legs (Scotch derricks)
5. Ringer mounted cranes
6. Cranes with a maximum rated capacity exceeding 200 metric tonnes.
7. Cranes with a maximum rated capacity under 1000 kg.
C.5.3 Crane specification for Stage 1 Training at onshore centres

The following detailed specification will cover mobile crawler and mobile tyre mounted crane types only as listed in C.5.1. When using this specification it should be remembered that these are minimum requirements only and does not preclude suitable onshore cranes of a higher specification.

Mobile cranes must have a maximum rated capacity of greater than 25 metric tonnes (with outriggers deployed)

C.5.3.1 Configuration: All mobile cranes must include the following features:
   a) Full 360° superstructure slew in either direction.
   b) Slewing speed must be greater than 0.5 rpm in either direction.
   c) Hoist speed on a single fall and 5.0 tonne on hook must be at least 40 metres/minute.
   d) Hoist speed on a single fall unloaded hook must be at least 50 metres/minute.
   e) It must be possible to operate at least two crane motions (hoist/boom/slew) simultaneously.

Boom: Lattice construction is preferred, however box type and telescopic booms are acceptable provided the boom length is a minimum of 30.5 metres excluding any boom tip extension or fly jib. Prime Mover: Diesel engine preferred which must incorporate a form of over speed device (rig saver) and for mechanical transmission cranes the diesel engine must also have some form of back driving prevention system. Electric prime movers must also comply with these requirements

Transmission System: Either hydraulic or mechanical transmission systems are acceptable but all crane motions must be fitted with fail safe brakes. If a mechanical transmission system is fitted then the following conditions are required to be met

1) No free fall facility should be incorporated.
2) If clutches are an integral part of the transmission system then a positive engagement feature must be incorporated into the design.
3) The power load lowering system must at least be effective with up to 2.5 tonne on the hook.
4) It must not be possible to dis-engage clutches with any load on the hook.

Continued.
OCO Stage 1 Crane Specification Continued.

Control System: Electrical/hydraulic/pneumatic control systems are acceptable. All types of controllers must be failsafe spring centred to neutral and be clearly identifiable. An emergency stop button must be positioned in a readily accessible position for the crane operator, actuation of this control button must instantly shut down the prime mover and all crane motions must cease.

Control Station: Control stations must be located on the crane revolving super-structure, remote control stations and control of the crane from within the automotive cab are not acceptable. Enclosed cab type control stations are preferred which conform to the following requirements:

a) Full 360° all round visibility
b) Electronic safe load indicator (Rated Capacity Indicator)
c) Two-way radio communication facilities: Delegate operating the crane to get a hands-free voice-activated radio
d) Manual operated warning horn
e) Legible and suitably positioned rating chart
f) Illuminated control and surveillance panels for operations in the hours of darkness
g) Demisting facility on front and side windows
h) Cab must be of sufficient size to accommodate a second person standing behind the crane operator.
C.5.4 Crane Simulator Specification

Crane Simulator (minimum) Specification

The crane simulator must be able to replicate the main functions of offshore cranes and must have the following:

1. Offshore crane operators chair
2. Crane controls (Joysticks or equivalent)
3. Two LCD screens – one for boom-tip camera and one for a safe load indicator (SLI) system
4. Crane panniers – one generic set
5. Instructors control station with PC/screens, instructor software, joystick, fly-around view.
6. Image generation (via projector onto screen/wall or through LCD Screens)
7. Sound and speaker system for crane sound effects
8. Full collision detection within the 3D world
9. Software capable of generating various offshore structures (rig types):
   a. Fixed Installation
   b. Floating (Semi-submersible or FPSO)
   c. Vessels
10. Software capable of generating the main functions of various types of offshore cranes, such as:
    a. Offshore pedestal cranes (Rope-Luffer and king post)
    b. Knuckleboom crane
    c. Box-boom crane
11. Software capable of generating various types of supply/standby vessels along with appropriate loads – CCU’s, hoses, tubulars, personnel lifting devices and control of vessels.
12. Software capable of generating a variety of environmental conditions:
    a. Wind speed and direction
    b. Dark and bright conditions
    c. Fog, snow and rain
    d. Sea states varieties (wave height and length).
13. System allows full recording and printing of data generated by delegates/candidates while working on simulator.
14. Software capable of generating a selection of crane malfunctions and alarms, as specified within the relevant standard.
15. Software capable of generating emergency response scenarios, as specified within the relevant standard.
SECTION D  ADMINISTRATION & CERTIFICATION

D.1  Joining Instructions

The OPITO-approved Training Centre must provide the delegate either with a copy of the OPITO-approved Offshore Crane Operator Stage 1 Training Standard or a link to the Standard on the OPITO website - so that the delegate can make himself/herself aware of the requirements of this Standard.

All joining instructions, including information specified in section A.3, must be given to delegates by the OPITO-approved Training Centre and, if applicable, to their sponsoring company.

D.2  Validity and Renewal

The Offshore Crane Operator Stage 1 Training certificate has no expiry.

Note: Delegates wanting to progress to Stage 2 must start their OPITO OCO Stage 2 Training within 12 months of gaining their OPITO OCO Stage 1 Training certification. Delegates must be made aware of this criterion by the Training Centre.

D.3  Certification

Training centres are responsible for issuing a certificate direct to the delegate completing the programme and to the sponsoring company (when required). Each certificate must indicate that the delegate has been evaluated against and achieved the agreed learning outcomes of the training programme, and must contain the following:

a) Training Centre name
b) Full OPITO course title stating that it is OPITO-approved
c) OPITO Registration Code
d) Delegate's name
e) Course dates
f) Expiry date
g) Unique Certificate Number (UCN) – Refer to OPITO UCN Guidance doc. for details
h) Training Centre Signatory.
Glossary of Terms and Abbreviations

Terms

Candidate
An individual whose ability, knowledge and skills are to be assessed against the expected performance requirements of the relevant OPITO-approved standard.

Delegate
Person attending the training course

Offshore Crane Operator
Operators of the main types of offshore cranes which can undertake a range of crane lifting operations, which may include: lifts on offshore installations, subsea lifts, diving support vessels lifts, well intervention vessels lifts and offshore construction vessels lifts.

Valid Certificate
An authentic certificate which is in-date i.e. has not expired

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>FPSO</td>
<td>Floating Production Storage and Offloading (structure or vessel)</td>
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<tr>
<td>LO</td>
<td>Learning Outcome</td>
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<tr>
<td>OCO</td>
<td>Offshore Crane Operator</td>
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<tr>
<td>SSoW</td>
<td>Safe Systems of Work</td>
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<td>SWL</td>
<td>Safe Working Load</td>
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<td>RCI</td>
<td>Rated Capacity Indicator</td>
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<tr>
<td>TBT</td>
<td>Toolbox Talk</td>
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Appendix 1 OPITO Information

The topics listed below are to be delivered as part of the introduction to this course and included in the Lesson Plans/Instructor guides/Exercise Plans. Additional introduction topics may include training centre layout and alarms, emergency actions, first aid and domestic arrangements

Mandatory OPITO Information:

a) Medical Fitness
b) CR/Vantage (provided by OPITO)
c) Certification Periods (provided by OPITO)
d) OPITO Customer Service Statement (provided by OPITO)
e) What is OPITO’s role in industry? (provided by OPITO)
f) Emergency Response Framework (provided by OPITO)
g) The roles of employers and training providers (provided by OPITO)
h) Current Global Network of training providers (provided by OPITO)
## Appendix 2 OCO Stage 1 Training Checklist

<table>
<thead>
<tr>
<th>Delegate Name</th>
<th>Delegate’s employer</th>
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### Module 1 Introduction to Offshore Crane Lifting Operations

<table>
<thead>
<tr>
<th>Module 1 Learning Outcomes</th>
<th>LO achieved</th>
<th>LO not achieved</th>
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<tbody>
<tr>
<td>1. Explain the roles and responsibilities of personnel involved in offshore crane lifting operations</td>
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<tr>
<td>2. Explain basic crane operations terminology, to include: luffing/jibbing, hoisting and slewing.</td>
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<td>3. Identify main crane components, their location on a crane and explain their principle function(s).</td>
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<td>4. Explain typical crane inspection criteria, pre-start checks, pre-operational checks, running checks, shutdown procedure, and the recording of same.</td>
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<td>5. Explain basic crane principles of stability and configurations.</td>
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<tr>
<td>6. Identify typical crane safety devices and explain their purpose; to include: luff/jibb, hoist and slew limiting systems.</td>
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<td>7. Define crane safe working load (SWL) and state how it is identified.</td>
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<td>8. Explain basic crane operating principles; to include load charts.</td>
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<td>9. Interpret (regionally-recognised) banksman hand signals.</td>
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<td>10. State the universal communications protocols and procedures used for handheld radios.</td>
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<tr>
<td>11. How to interpret information from crane rated capacity indicators and explain how they are used.</td>
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<td>12. Explain how to visually inspect the basic condition and spooling of crane wire rope.</td>
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<td>13. Identify typical conflicting activities which may affect the lifting operations.</td>
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<tr>
<td>14. Identify environmental conditions liable to affect the lifting operation.</td>
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<td>15. Identify safe lifting principles, to include: planning, centering the hook, knowing load weight and load path, load path hazard identification and good communications.</td>
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<tr>
<td>16. Explain crane operating techniques, to include: swing control, height judgement, and control coordination</td>
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**Instructor Comments**
## Offshore Crane Operator Stage 1 Training Learning Outcomes - Checklist

<table>
<thead>
<tr>
<th>Module 2 Offshore Crane Operations (Knowledge LOs)</th>
<th>LO achieved</th>
<th>LO not achieved</th>
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<tbody>
<tr>
<td><strong>Delegate Name</strong></td>
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<tr>
<td><strong>Module 2 Knowledge Learning Outcomes</strong></td>
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<tr>
<td>1. Identify the relevant legislation that applies to crane lifting operations</td>
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<tr>
<td>2. Identify the key components of a Safe System of Work (SSOW) applicable to crane lifting operations, to include technical, behavioral and procedural systems.</td>
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<td>3. Identify typical hazards associated with crane lifting operations</td>
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<tr>
<td>4. State the purpose of conducting a pre-use inspection of a crane</td>
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<td>5. Identify typical pre-use inspection criteria for offshore cranes</td>
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<tr>
<td>6. Identify primary methods of crane operations communications</td>
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<td>7. Identify typical documents applicable to crane lifting operations.</td>
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<td>8. Explain how a typical lifting operation is planned.</td>
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<tr>
<td>9. Explain the purpose of a lifting operation risk assessment.</td>
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<tr>
<td>10. Explain the key elements of a lifting operation toolbox talk (TBT).</td>
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<tr>
<td>11. Explain why it is important that all personnel involved in the lifting operation know and understand their duties and responsibilities.</td>
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<tr>
<td>12. Identify typical unsafe areas and positions of personnel during a lifting operation.</td>
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<tr>
<td>13. Explain how to check the suitability of laydown areas for the crane load.</td>
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<tr>
<td>14. Explain normal and emergency access and egress routes for the crane operator</td>
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**Instructor Comments**
### Offshore Crane Operator Stage 1 Training Learning Outcomes - Checklist

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#### Module 2 Offshore Crane Operations: Offshore Crane Operations

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<thead>
<tr>
<th>Module 2 Skills Learning Outcomes</th>
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<tbody>
<tr>
<td>15.</td>
<td>Pre-start and pre-operational checks</td>
</tr>
<tr>
<td>16.</td>
<td>Basic crane control with no load on the hook</td>
</tr>
<tr>
<td>17.</td>
<td>Lifting, transferring and placing light loads (with respect to tonnage)</td>
</tr>
<tr>
<td>18.</td>
<td>Lifting, transferring and placing of intermediate loads (with respect to tonnage)</td>
</tr>
<tr>
<td>19.</td>
<td>Operating a crane to follow a planned load path avoiding hazards.</td>
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<tr>
<td>20.</td>
<td>Safe operating techniques whilst operating the crane.</td>
</tr>
<tr>
<td>21.</td>
<td>Good crane control coordination</td>
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<tr>
<td>22.</td>
<td>Height/distance judgement techniques</td>
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<tr>
<td>23.</td>
<td>Slew/Swing control techniques</td>
</tr>
<tr>
<td>24.</td>
<td>Operating three crane control functions simultaneously [luff/jib, hoist and slew] where crane type has capability of simultaneous control function operation.</td>
</tr>
<tr>
<td>25.</td>
<td>Correctly responding to banksman hand signals and radio instructions.</td>
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<tr>
<td>26.</td>
<td>Correctly shutdown and made safe [the crane] following a simulated installation emergency alarm</td>
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### Instructor Comments

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