

# **TPTI APPROVED STANDARDS**

## **Basic Offshore Crane Operator**

# TPTI Standard – Offshore Crane Operator

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AMENDMENTS				
AMENDMENT	PAGES	CHANGES MADE BY:	CHECKED BY:	APPROVED BY:
Change the name from Offshore Crane Operator to <b>Basic Offshore Crane Operator</b> 12-Jun-2017	1			
<b>Introduction</b> Added <b>topic A</b> : Basic training and knowledge assessment carried out as under the local Thai Government Regulation, Ministry of Labour 12-Jun-2017	6			
<b>A1 Target Group Note</b> changed to This course is designed to qualify crane operators to perform basic offshore crane lifting operations under both Ministry of Labour and Ministry of Energy for working in Offshore Petroleum Concessions only. Further qualification and competence must be structured by the individual employers. This course does not qualify the operator to perform man-riding activities. 12-Jun-2017	7			
<b>A1 Target Group</b> changed the module from Crane Inspections to <b>Basic Principle of Crane Inspections</b> 12-Jun-2017	7			
<b>A2 Delegate Prior Achievement</b> changed from No prior achievement required to <b>Delegates must have completed Rigging and Slings Technique prior to taking this course.</b> 12-Jun-2017	7			
<b>A3., A4. Learning Outcome</b> changed from OPITO approved standards to <b>Thailand Ministry of Labour standards</b> <b>Topic E Candidates will Demonstrate Awareness of;</b> changed from Crane Inspections to <b>Basic Principle of Crane Inspections</b> 12-Jun-2017	8,10			
<b>A3 Candidates will Demonstrate Knowledge</b> <b>Topic A</b> changed from Crane operator duties to <b>Crane operator duties and competency under Thai laws and recognized international standards</b> <b>Topic C</b> changed from Crane operation on MODU/Tenders to <b>Crane operations on both Static/Fixed Location and MODU/Tenders</b> 12-Jun-2017	8			

Any amendments made to this standard by TPTI will be recorded above

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AMENDMENTS				
AMENDMENT	PAGES	CHANGES MADE BY:	CHECKED BY:	APPROVED BY:
<p><b>A3 Candidates will Demonstrate Knowledge of;</b> Removed</p> <p><b>Topic D</b> Safe Handling &amp; Lifting Practices</p> <p><b>Topic F</b> Wire rope make up, safe parameters &amp; handling 12-Jun-2017</p>	8			
<p><b>A6 Duration of Training</b> contact time is changed from 40 hours <b>to 24 hours</b></p> <p><b>The ratio</b> is changed from 30%:70% theory/practical to <b>70%:30% theory/practical</b> 12-Jun-2017</p>	14			
<p><b>A8 Further Training / Assessment</b></p> <p>Further level of training and assessment is the responsibility of the employer. The classification of crane operator is not part of this training program. The further training and classification record shall not be included in TPTI Central Database System.12-Jun-2017</p>	15			
<p><b>B5 added Note:</b> Upon the Finishing of this program, candidates will also receive an additional separate Crane Operator Certificate which accredited to the Department of Labour Protection and Welfare, Ministry of Labour. 12-Jun-2017</p>	19			

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## GLOSSARY

ACOP	Approved Code of Practice
DMF	Department of Minerals Fuels
HASAWA	Health & Safety at Work Act
HS&E	Health, Safety & Environment
LOLER	Lifting Operations and Lifting Equipment Regulations
MHSWR	Management of Health & Safety at Work Regulations
PUWER	Provision and Use of Work Equipment Regulations
TPTI	Technical Petroleum Training Institute
MOL	Ministry of Labour

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## Basic Offshore Crane Operator

### INTRODUCTION

This standard was developed by TPTI in conjunction with a workgroup representing the interests of the offshore oil & gas industry in Thailand.

This document introduces and describes the core competence and safety training requirements for personnel assigned / employed as crane operators for offshore operations subject to API, British Standards, European Standards and other recognized international and Thai Government standards. It explains how competence shall be imposed, assessed and certified.

The industry recognizes that a major objective is to prevent incidents occurring and if they do occur, to control them and minimize their effect. It is important therefore to set common standards and to ensure that they are maintained.

The attainment of competency will require personnel to demonstrate both theoretical knowledge and practical skills. Dependent upon the experience of personnel, the following steps in training and assessment must be undertaken:

- a) Basic training and knowledge assessment carried out as under the local Thai Government Regulation, Ministry of Labour
- b) Basic training and knowledge assessment carried out at a TPTI approved training establishment.
- c) Ongoing development and skills enhancement

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## Basic Offshore Crane Operator

### A.1 Target Group

This program is designed to meet the requirements for the initial certification of basic offshore crane operators working on rigs, FPSO's, construction barges, diving vessels and other floating assets used in Exploration and Production operations in Thailand.

**Note:** This course is designed to qualify crane operators to perform basic offshore crane lifting operations under both Ministry of Labour and Ministry of Energy for working in Offshore Petroleum Concessions only. Further qualification and competence must be structured by the individual employers. This course does not qualify the operator to perform man-riding activities.

#### **This Offshore Crane Operator Course contains:**

- Learning Outcomes
- Training Program Content
- Statements on:
  - Assessment
  - Further Training / Assessment

#### **This Standard consists of the following modules:**

- Hierarchy of Legislations
- Standards & Definitions
- Historical Accident Review
- Duties of a Crane Operator
- Load Charts
- General Safety Rules
- MODU/Tender Operations
- Conducting a Lift
- Pre Start Inspections
- Slings / Wire Rope
- Working with Riggers / Banksman
- Shift Handovers
- Personnel Lifts
- Post Operations / Shut Down
- Basic Crane Maintenance
- Basic Principle of Crane Inspections

### A.2 Delegate Prior Achievement

Delegates must have completed Rigging and Slings Technique prior to taking this course.

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## Basic Offshore Crane Operator

**The responsibility for delivering this program rests with TPTI Approved Training Providers**

### A.3 Learning Outcomes

The following guidance must be used to create a series of explanations, demonstrations and opportunities to practice.

- Provision and Use of Work Equipment Regulations 1998 (PUWER)
- Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)
- API 2C & D
- Thailand Ministry of Labour standards

#### Candidates will Demonstrate Awareness of:-

- Relevant Legislation under Thai laws and recognized international standards
- Crane Operator Standards & Definitions
- Safe Crane Operations
- Basic crane maintenance
- Basic Philosophy of Crane inspections

#### Candidates will Demonstrate Knowledge of:-

- Crane operator duties and competency under Thai laws and recognized international standards
- General safety rules
- Crane operations on both Static/Fixed Location and MODU/Tenders
- Crane pre and post operations Inspections
- Working with banksmen
- Shift handovers
- Safe crane lifting operations



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## Basic Offshore Crane Operator

### A.3 Learning Outcomes (continued)

#### Candidates will Demonstrate the Ability to:-

- a) Identify and inspect crane equipment (slings, fittings, shackles, etc) as fit for use and appropriate for each lifting scenario.
- b) Perform start up operations checks and shut down checks
- c) Be able to read and understand the crane specific load chart
- d) Work with banksmen / riggers to lift / move / land loads in a safe manner
- e) Conduct all lifting operations safely in accordance with the scenario presented by the assessor.

### A.4 Training Program

The training program outlined below will assist delegates to meet the stated training outcomes.

In order to make efficient use of time and ensure effective learning, the three phases of explanation, demonstration and practice should be integrated wherever practicable. To facilitate the most effective learning, the practical part will always succeed the theoretical part of the training.

Full use should be made of visual/audio-visual aids and course handout materials.

**Practical exercises should be designed and delivered solely to meet these standards and must not place on delegates any physical or mental demands other than those required to meet the standard.**

#### 1. Hierarchy of legislation.

##### Give an overview of:

- a) Environment Statutory Requirements.
- b) Provision and Use of Work Equipment Regulations 1998 (PUWER).  
UK HSE Executive.
- c) Lifting Operations and Lifting Equipment Regulations 1998 (LOLER),  
and BS.

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## Basic Offshore Crane Operator

### A.4 Training Program (continued)

**Give an explanation of:**

- a) The use of API 2C
- b) The use of API 2D
- c) Thailand Ministry of Labour standards

### 2. Standards & Definitions

**Give an overview of:**

- a) The definition of a Crane Operator
- b) Crane Operator qualifications including those for static & dynamic lifts
- c) Crane Operator health and medical check requirements
- d) Crane types and a general overview of their capabilities
- e) Rig types & precautions to be taken

### 3. Historical Accident Review

**Give an overview of:**

- a) historical crane accidents

**Provide a detailed discussion on:**

- a) Case studies

### 4. Duties

**Give an explanation of:**

- a) Load Handling
- b) Authority of the crane operator

### 5. Load Charts

**Give a detailed explanation of:**

- a) Use of load charts

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## Basic Offshore Crane Operator

### A.4 Training Program (continued)

#### 6. General Safety Rules

Give a detailed explanation of:

- a) General safety rules for crane operations
- b) Crane shut down during helicopter operations.
- c) Critical Lifts
- a) Crane operations in hostile environments

#### 7. MODU/Tender Operations

Give an overview of the special requirements when working with MODU's/Tenders:

- a) Precautions
- b) Weather considerations, wind, sea effects
- c) Supply boat operations
- d) Snatching
- e) Communications

#### 8. Lifting Operations

Give a detailed explanation of:

- a) Pre lift checks
- b) Crane equipment checks
- c) Lifting equipment
- d) Load verification
- e) Lift planning
- f) Load lifting, lowering

#### 9. Pre start inspections

Give a detailed explanation of:

- a) Engine inspections
- b) Visual inspection of crane structure
- c) Crane Rigging inspection
- d) Safety equipment inspection
- e) Limit switch testing

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## Basic Offshore Crane Operator

### A.4 Training Program (continue)

#### 10. Wire rope

**Give an overview of:**

- a) Crane rigging maintenance & inspection
- b) Wire rope maintenance
- c) Lifting equipment maintenance & inspection
- d) Wire rope Inspections
- e) Colour coding
- f) S.W.L
- g) Hooks, shackles etc

#### 11. Working with Riggers And Banksmen

**Give an overview of:**

- a) Qualifications
- b) Responsibilities
- c) Safety Rules

**Give a detailed explanation of:**

- a) Standard hand signals
- b) Use of radios
- c) Managing a crane lift

#### 12. Shift Handovers

**Give a detailed explanation of:**

- a) Reasons for a hand over
- b) Operational considerations
- c) Time constraints.
- d) Details to be included in a hand over

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## Basic Offshore Crane Operator

### A.4 Training Program (continue)

#### 13. Personnel Lifting

**Give an overview of:**

- a) Types of personnel lifting equipment
- b) Requirements for man riding cranes
- c) Use of personnel lifting equipment

**Give a detailed explanation of:**

- a) Limitations on use of personnel lifting equipment
- b) Hazards associated with lifting & moving personnel
- c) Safety precautions.

#### 14. Crane Post Operations/ Shut down

**Give an explanation of:**

- a) Refuelling procedures (where relevant)
- b) Boom stowage.
- c) Engine shut down

#### 15. Maintenance

**Give an overview of:**

- a) Maintenance intervals / manufacturer recommended practice
- b) Core precautions to be taken during maintenance periods
- c) Lubrication & greasing
- d) Reporting of deficiencies, damage, wear
- e) Record keeping
- f) Maintenance of log books

#### 16. Crane Inspections

**Give an overview of:**

- a) Frequency for inspections
- b) Methods of crane inspection
- c) Load tests

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## Basic Offshore Crane Operator

### A.5 Offshore Crane Simulator Involvement

The necessity to provide practical training that is both realistic and safe devolves to the use of a simulator. For the purposes of this standard, all practical training and assessment shall be completed by use of a simulator or real situation dynamic crane simulator which capable of providing real life scenarios in a realistic environment.

**The use of a simulator providing realistic offshore lifting scenarios covering all normal operating types and parameters is mandatory. TPTI shall arrange provision of suitable simulators for both practical exercises and assessments.**

### A.6 Duration of Training

The optimum 'contact time' for this training and assessment is seen as 24 hours.

It is suggested that a ratio of 70% : 30% theory/practical is appropriate.

It is also recommended that each delegate has at least 1 hour practicing on an onshore mobile crane and at least 2 hrs practicing on an offshore crane simulator or real situation dynamic crane simulator.

Assessments, both written and practical, will be conducted after the training program is finished.

### A.7 Practical and Written Assessment

Assessment of the candidates' performance will be against the stated learning outcomes and will involve both written and practical assessments. The written assessment will be administered by TPTI and the practical assessment will be conducted by TPTI accredited assessors.

Delegates attending this training and assessment program (referred to as candidates during assessment) will be given a series of explanations and demonstrations which will identify what they are expected to know and do. This will be followed by practical exercises that will allow delegates to demonstrate their skills, knowledge and understanding of Basic Offshore Crane Operations.

Candidates who achieve a rating of 70% or higher on the written assessment and a 'Pass' on the practical assessment, will be issued a TPTI certificate.

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### **A.7 Practical and Written Assessment (continue)**

If they achieve lower than 70% or fail the practical assessment, further time and opportunity for coaching will be given to candidates to enable them to reach the standard leading to the award of a certificate. However, the time available for this during a program is limited and it should be recognized there may be occasions where other arrangements need to be made.

If they achieve lower than 70% or fail the practical assessment, the candidate must retest the failed portion of the assessment within eight weeks. The candidate will be allowed two attempts at the retest within the eight week period, if required.

If all attempts described above fail, then the candidate must re-take the Offshore Crane Operator course.

### **A.8 Further Training / Assessment**

Further level of training and assessment is the responsibility of the employer. The classification of crane operator is not part of this training program. The further training and classification record shall not be included in TPTI Central Database System.

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## RESOURCES

In order that a competence program may be delivered successfully it is essential that the correct people are present to support the program and that the appropriate facilities and equipment are in place.

### B.1 Staff

Instructional staff will be required to carry out training and assessors will be required to judge candidate's competence. It is important that the staff involved have the appropriate qualifications and experience.

a) Trainers will:

- Have a minimum of 5 years experience as a crane operator.
- Hold (or have held) a heavy lift crane operator license,
- Be trained and qualified in instructional/lecture techniques and/or have proven instructing/teaching experience.
- Have training and experience in crane operations including training from recognized providers and on the job experience.
- Be included in an ongoing staff training program which enables them to maintain and update skills and knowledge.
- Be able to clearly communicate in the English language
- Have knowledge of applicable Thai and International Standards and Regulations applicable to Crane Operations and Safety

b) Assessors must be:

- Discipline experts trained and qualified in assessment techniques
- Knowledgeable of the areas being assessed

c) All staff must have the appropriate competences to conduct/assist the element of training being conducted.

d) All Training staff will be trained in the causes and consequences stress/anxiety, coping skills and how to manage delegates who are suffering from anxiety.



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## RESOURCES

### B.2 Trainer/Delegate Ratio

- a) It is recommended that the maximum number of delegates attending this program is 10.
- b) The following ratios indicate the maximum number of delegates to be supervised by one Instructor at any one time during each activity.

Theory	1:10
Practical	1:5

### B.3 Facilities

It is important to make sure that facilities as listed below are available.

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

**Theory** training area(s) so designed to enable each delegate view, to hear and participate fully in the subject matter being taught.

#### Practical

- Mobile onshore crane so designed to enable delegates to gain hands-on experience of moving loads in a live environment as follows:
  - a) Crane pre lift inspections
  - b) Crane lift / execution plan implementation
  - c) Working practice with riggers / slingers
  - d) Working practice on crane post operations inspection
- A training simulator or real situation dynamic crane simulator so designed to enable each delegate, to practice the following:
  - e) Working practice with riggers / slingers
  - f) Working practice with moving loads under at least three offshore scenarios
  - g) Working practice on use of load charts

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

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## RESOURCES

### B.4 Equipment

- a) Different types of equipment may be required and it is important to make sure that is both available and fit for purpose
- Mobile onshore crane having lifting capacity of 100 - 250 MT
  - Offshore Crane simulator or real situation dynamic crane simulator
  - Rigging and supporting equipment for demonstration purposes

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

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## GENERAL GUIDANCE & REQUIREMENTS

### B.5 Certification & Recording

A TPTI Certificate will be issued to all candidates assessed as meeting the stated outcomes, detailing that they are competent to proceed to the workplace for company specific training where applicable. Delegates details will also be registered in the TPTI Central Register, The issue of a certificate indicates that the delegate has achieved a level of competence to enable him/her to proceed to the workplace for further training and development. Following satisfactory assessment the training provider delivering the training will issue every candidate a certificate.

Each individual attending any TPTI approved program must be registered with the Central Register (CR) operated by TPTI.

*Note : Upon the Finishing of this program, candidates will also receive an additional separate Crane Operator Certificate which accredited to the Department of Labour Protection and Welfare, Ministry of Labour.*

Training Establishments are responsible for the following:

- a) The issuing of certificates direct to the delegate completing the program and to the sponsoring company (when required). Each certificate must indicate that the delegate has been assessed against the agreed training outcomes and must contain the following:
  - Establishment name
  - Full TPTI course title stating that it is TPTI approved
  - TPTI course identification code
  - Delegate's name
  - Course dates
  - Expiry date (will be the day before the course completion date)
  - Unique Certificate Number
  - Establishment Signatory
- b) Each individual attending any TPTI approved program must be registered with the Central Register (CR) operated by TPTI. Registration must be made by training establishments to TPTI on a daily basis.
- c) All Joining Instructions contain information, which indicate certain aspects of the course are of a physical nature. The responsibility for the individual completing the course without any adverse effects to their present state of health lies with the delegate and/or company sponsoring the delegate

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## GENERAL GUIDANCE & REQUIREMENTS

### B.5 Certification & Recording (continue)

- d) Prior to each course commencing, delegates must sign a declaration indicating they have read and understood a written statement regarding the physical nature of the program and the need for delegates to be in good health. Instructional staff should also read out a statement indicating this at the time.
- e) Where doubt exists regarding the medical fitness of any delegate, the training establishment should ask the delegate or their employer to seek the advice of a medical examiner.
- f) A Medical officer, familiar with the nature and extent of the training is "on call".
- g) Risk assessment of all training areas and provision of all appropriate safety equipment.
- h) Written statements of organization for all sessions, which clearly define responsibilities and relationships for all staff either directly or indirectly involved.
- i) All training and supporting activities are carried out in accordance with current legislation and safe working practices.

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## GENERAL GUIDANCE & REQUIREMENTS

### B.6 Medical and Health Requirements

Crane operators, due to the critical safety role they play in any offshore operation, are required to be medically fit.

In addition a crane operator must hold medical proof of depth of vision (Snelling) testing as well as that for color blindness. Each of these are considered fundamental to the ability of a crane driver to safely and competently handle a load such that the load itself is not compromised, nor the safety of personnel involved or peripheral to the lift.

Training Establishments are required to ensure that prior to participating in practical exercises the delegate must;

- a) Possess a valid, current medical certificate from hospitals, clinics, or clinical agents registered under Thai government and:
- b) Possess a valid, current depth of vision (Snelling) certificate from hospitals, clinics, or clinical agents registered under Thai government and:
- c) Possess a valid, current color vision certificate from hospitals, clinics, or clinical agents registered under Thai government and:

It is recommended that this information is given to delegates along with pre-course joining instructions

**Guidance and advice on this standard is available by contacting:**

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