

TPTI APPROVED STANDARDS

Offshore Crane Operator

REV.	0	DATE	16/02/11
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CONTENTS

GLOSSARY		4
INTRODUCTION		5
	OFFSHORE CRANE OPERATOR	
	A.1 Target Group	6
	A.2 Delegate Prior Achievement	6
	A.3 Learning Outcomes	7
	A.4 Training Program	8
	A.5 Simulator Involvement	13
	A.6 Duration of Training	13
	A.7 Practical and Written Assessment	13
	A.8 Further Training/Assessment	14
RESOURCES		
	B.1 Staff	15
	B.2 Trainer/Delegate Ratio	16
	B.3 Facilities	16
	B.4 Equipment	17
	B.5 Certification and Recording	18
	B.6 Medical and Health Requirements	20

REV.	0	DATE	16/02/11
------	---	------	----------

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
OPITO	Standards & Approvals function of Cogent Sector Services Limited (sets international standards)
PUWER	Provision and Use of Work Equipment Regulations
TPTI	Technical Petroleum Training Institute

REV.	0	DATE	16/02/11
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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 standards. It explains how competence shall be 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 at a TPTI approved training establishment.
- b) Ongoing development and skills enhancement

REV.	0	DATE	16/02/11
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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 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 / Banksmen
Shift Handovers
Personnel Lifts
Post Operations / Shut Down
Basic Crane Maintenance
Crane Inspections

A.2 Delegate Prior Achievement

No prior achievement required

REV.	0	DATE	16/02/11
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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
- OPITO approved standards

Candidates will Demonstrate Awareness of:-

- a) Relevant legislation under Thai laws and recognized international standards
- b) Crane Operator Standards & Definitions
- c) Safe Crane Operations
- d) Basic crane maintenance
- e) Crane inspections

Candidates will Demonstrate Knowledge of:-

- a) Crane operator duties
- b) General safety rules
- c) Crane operations on MODU/Tenders
- d) Safe Handling & Lifting Practices
- e) Crane pre and post operations Inspections
- f) Wire rope make up, safe parameters & handling
- g) Working with banksmen
- h) Shift handovers
- i) Safe personnel lifting operations

REV.	0	DATE	16/02/11
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Offshore Crane Operator

A.3 Learning Outcomes (continued)

Candidates will Demonstrate the Ability to:-

- a) Identify and inspect crane rigging 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.

REV.	0	DATE	16/02/11
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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) OPITO approved 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

REV.	0	DATE	16/02/11
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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

REV.	0	DATE	16/02/11
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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

REV.	0	DATE	16/02/11
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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

REV.	0	DATE	16/02/11
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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 40 hours.

It is suggested that a ratio of 30% : 70% 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.

REV.	0	DATE	16/02/11
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Offshore Crane Operator

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

An Assessment, both written and practical, will be conducted at the TPTI Approved Training Centers.

Further level of training and assessment is the responsibility of the employer. However, it is recommended that where there is no logged proof of further levels of training, a refresher course should be completed at three year intervals.

If the candidate can provide a valid proof of logged crane operating hours recognized by TPTI, equaling at least 1,000 hours within the last three years then they are entitled to take a one day written and practical assessment without having to take a refresher course. If the candidate achieves a minimum of 70% on the written assessment and a 'Pass' on the practical assessment, they will be issued a renewal certificate.

If no proof of work can be provided, the candidate must take the TPTI refresher course. If the candidate achieves a minimum of 70% on the written assessment and a 'Pass' on the practical assessment of the refresher course, they will be issued a renewal certificate.

When a candidate fails the assessment, he/she can retest the failed portion of the assessment within eight weeks; otherwise, a six-month period is required prior to attending another Offshore Basic Crane Operator course.

The recommended duration of this training and assessment session should be not less than 20 hours contact time with a ratio of 5%:95% theory and practical.

REV.	0	DATE	16/02/11
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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.

REV.	0	DATE	16/02/11
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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.

REV.	0	DATE	16/02/11
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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.

REV.	0	DATE	16/02/11
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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.

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

REV.	0	DATE	16/02/11
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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.

REV.	0	DATE	16/02/11
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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:

Technical Petroleum Training Institute (TPTI)
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