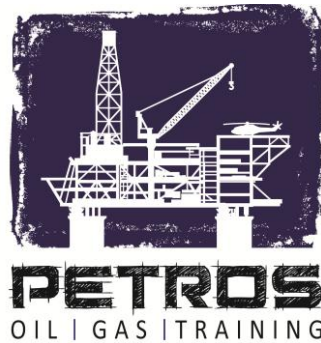


Certificate No : PTR-OFS-LF-WSC-05
Date : December 18th , 2025



CERTIFICATE OF ACCOMPLISHMENT

This certificate is granted to

ABDUL GHANI HARAHAAP
ID NUMBER : OFS-WSC-05

For successfully completing
& finished the Final Project of our Training

SACS TRAINING - LIFTING ANALYSIS

Held at **Wasco Engineering Indonesia** – Batam, Indonesia,
22 & 23 November 2025, covering the subjects as listed on the back page



Certificate Validation

A handwritten signature in black ink, appearing to read "Heru Prasadja".

Heru Prasadja, ST
Director

SACS TRAINING – LIFTING ANALYSIS

SUBJECTS

THEORY

- Design Premises
- Reference Documents
- Method Of Analysis
- Boundary Conditions
- Allowable Stress
- Contingency Factor
- Dynamic Amplification Factor
- Consequence Factor
- Skew Effect
- Rigging Arrangement
- CoG Variation (envelope method)
- Hook Point
- Slings

LOADING

- Dry Lifting Load
- CoG Shift Force

LOADING COMBINATION

- Loading Combination Without Consequence Factor
- Loading Combination For Member Connecting To Lifting Point
- Loading Combination For Member Not Connecting To Lifting Point

LIFTING ANALYSIS COMPUTER MODELLING

ANAYSIS RESULT

- Weight Summary
- Centre Of Gravity
- Maximum Sling Load
- API/AISC Member Stress Ratios
- Joint Deflection

LIFTING ANALYSIS REPORT PREPARATION

FINAL PROJECT : LIFTING ANALYSIS OF 103 TONS DECK PLATFORM