

## SYLLABUS DIKLAT

*“LIQUID CARGO” peringkat “Junior Surveyor” angkatan 12*

**LEMBAGA PENDIDIKAN AISI**

NO	MATA PELAJARAN	MATERI & RUANG LINGKUP	WAKTU
1.	Kebijaksanaan pemerintah dalam pembinaan usaha jasa perdagangan.	Pengertian jasa perdagangan, pembinaannya .	1 jam
2.	Perdagangan jasa Independent Surveyor	Perdagangan jasa Independent Surveyor dalam kaitan menghadapi era perdagangan bebas.	1 jam
3.	Static & Dynamic measurement	<p>Static measurement :</p> <p>a. Konsep dasar</p> <ul style="list-style-type: none"> <li>- Pengenalan standar, sistem &amp; analisis satuan</li> <li>- Konsep-konsep dasar pengukuran</li> <li>- Sifat-sifat fisis yang mempengaruhi pengukuran</li> </ul> <p>b. Tank gauging</p> <ul style="list-style-type: none"> <li>- Standard method &amp; terminology</li> <li>- Gauging Equipment, Gauging Accuracy &amp; Gauging Procedure</li> </ul> <p>c. Temperature - Measurement</p> <ul style="list-style-type: none"> <li>- Type of equipment</li> <li>- Immersion Time &amp; Measurement Level</li> <li>- Measurement Procedures</li> </ul> <p>Dynamic measurement :</p> <p>a. Metode dinamis, Mekanisme kerja, Teknik pengukuran &amp; cara perhitungan.</p> <p>b. Definisi</p> <ul style="list-style-type: none"> <li>- Meters (Flow meter) ; PD Meter (Positive Displacement Meter) &amp; PT Meter (Positive Turbine Meter)</li> <li>- Meters Provers ; Unidirectional &amp; Bidirectional Meter Prover</li> </ul> <p>c. ATG (Automatic Temperature Gravity)</p> <p>d. ATC (Automatic Temperature Compensator)</p> <p>e. Deaerator</p> <p>f. In Line Sampler (Automatic in line sampler)</p> <p>g. Time &amp; Flow Proporsional.</p> <p>h. TOV, GOV, GSV, VCF, WCF, NSV</p> <p>i. Base Volume, Meter Factor</p> <p>j. Cts, Ctl (ASTM D1250), Cps, Cpl (Compressibility)</p>	6 jam
4.	Quantity Determination	<p>a. Measuring quantity on shore (Bill of lading)</p> <ul style="list-style-type: none"> <li>- Standardized Terminology (manual gauging)</li> <li>- Metering Terminology</li> <li>- Line Fullness Verivication</li> </ul> <p>b. Measuring quantity on board (ship figure)</p> <ul style="list-style-type: none"> <li>- Volume of Ship’s Pipeline</li> <li>- Special consideration for crude oil</li> <li>- Additional information                             <ul style="list-style-type: none"> <li>• Vessel Experience Factor (VEF)</li> <li>• Statements, Letter of Protest</li> </ul> </li> </ul> <p>c. Observation, measurement and calculation</p> <ul style="list-style-type: none"> <li>- Konsep dasar</li> <li>- Pengertian istilah</li> <li>- Pemahaman tabel &amp; penggunaan dalam metode perhitungan &amp; penggunaan form perhitungan</li> </ul>	4 jam

5.	Sampling	<ul style="list-style-type: none"> <li>- Dasar-dasar sampling, termasuk manual &amp; automatic sampler</li> <li>- Metode &amp; peralatan sampling, termasuk codenya</li> <li>- Sampling untuk keperluan khusus, termasuk codenya</li> <li>- Penyiapan &amp; penanganan sample, termasuk codenya</li> <li>- Pengiriman &amp; penyimpanan sample, termasuk codenya</li> </ul>	2 jam
6.	Tank Inspection	<ul style="list-style-type: none"> <li>- Shore tank</li> <li>- Shore &amp; ship pipelines</li> <li>- Ship's tanks (cargo tanks) <ul style="list-style-type: none"> <li>• Tank cleaning, dry inspection &amp; cleanliness</li> <li>• Cargo compatibility, Before &amp; after dry docking</li> <li>• Crude Oil Washing (COW), Gas free.</li> </ul> </li> </ul>	3 jam
7.	Quality Determination	<ul style="list-style-type: none"> <li>- Pengenalan produk petroleum &amp; turunannya</li> <li>- Pengenalan / gambar peralatan</li> <li>- Cara kerja peralatan</li> <li>- Prosedur analisa</li> <li>- Critical aspect of analysis</li> <li>- Teknik verifikasi</li> <li>- Pemahaman jenis / item analysis <ul style="list-style-type: none"> <li>• API/ SG / Density – ASTM D 1298</li> <li>• BS &amp; W – ASTM D 1796</li> <li>• Flash point – ASTM D 92</li> <li>• Flash point Pmcc – ASTM D 93</li> <li>• Pour point – ASTM D 97</li> <li>• Sulphur content – ASTM D 4294</li> <li>• Water content – ASTM D 95</li> <li>• Sediment content – ASTM D 473</li> <li>• Smoke point – ASTM D 1322</li> <li>• RVP – ASTM D 323</li> <li>• Chlor (Cl)</li> </ul> </li> </ul>	3 jam
8.	Calibration	<ul style="list-style-type: none"> <li>a. Kalibrasi tangki <ul style="list-style-type: none"> <li>- Jenis tangki</li> <li>- Masa berlaku kalibrasi</li> <li>- Metode kalibrasi <ul style="list-style-type: none"> <li>• Mengukur dengan flow meter</li> <li>• Metode mengukur langsung</li> <li>• Mengukur tidak langsung (strapping)</li> </ul> </li> </ul> </li> <li>b. Kalibrasi meter prover <ul style="list-style-type: none"> <li>- Meter prover</li> <li>- Pipa ukur</li> <li>- Metode Water Draw</li> <li>- Metode Master Meter</li> </ul> </li> </ul>	2 jam
9.	Role and Function of Surveyor	<ul style="list-style-type: none"> <li>- Peran Surveyor, sebagai wakil dari klien</li> <li>- Fungsi Surveyor, sebagai pihak ke 3</li> <li>- Pengertian : <ul style="list-style-type: none"> <li>• Oil trading (FOB, C&amp;F, CI&amp;F)</li> <li>• Pihak pertama, pihak kedua &amp; pihak ketiga</li> <li>• Claim – Asuransi</li> <li>• Survey Report</li> <li>• Jenis Surveyor</li> <li>• Code of Conduct</li> </ul> </li> </ul>	2 jam
10.	Cargo Documents	<ul style="list-style-type: none"> <li>2 Cargo Documents (by Terminal &amp; Ship) <ul style="list-style-type: none"> <li>• Bill of Lading</li> <li>• Certificate Quantity (Shore &amp; Ship)</li> </ul> </li> </ul>	2 jam

		<ul style="list-style-type: none"> <li>• Certificate of Analysis</li> <li>• Statement of Origin</li> <li>• Manifest</li> <li>• Time Sheet</li> <li>• N/R Tendered &amp; Accepted 2 Documents by Surveyor</li> <li>• Survey Report (Final &amp; Provisional)</li> <li>• Ullage Report (Shore &amp; Ship)</li> <li>• Cleanliness cargo tanks</li> </ul>	
11.	Tanker Vessel & Terminal	<p>a. Kapal Tanker</p> <ul style="list-style-type: none"> <li>- Pengertian &amp; jenis kapal tanker</li> <li>- Cargo Handling</li> <li>- General precaution on tanker <ul style="list-style-type: none"> <li>• Smoking &amp; naked light, galley</li> <li>• Portable lamps &amp; electric equipment</li> </ul> </li> <li>- Sistem pemipaan &amp; bagian-bagiannya <ul style="list-style-type: none"> <li>• Tank valves, drops, crossover, crossoverlines</li> <li>• Pipa gas, pipa-pipa uap</li> <li>• Kepala tangki / kepala palka</li> </ul> </li> <li>- Alat untuk menghindari Galvanisasi &amp; karat</li> <li>- Penyiapan tangki untuk pemuatan</li> <li>- Ship Manifold &amp; Pipelines</li> <li>- Ballast</li> <li>- Pencucian tangki / tank cleaning</li> <li>- Pengeringan air di dalam tangki, Pengeringan air tawar,</li> <li>- Peranginan / ventilasi (free gas), Pencucian secara sederhana.</li> </ul> <p>b. Terminal :</p> <ul style="list-style-type: none"> <li>- Kilang, Tankyard, Cargo handling / rencana pemuatan,</li> <li>- Laboratorium Pertamina</li> <li>- Pipelines, Pump house, hose pit, manifold, jetty</li> <li>- Personal (Kepala terminal, kepala kilang, Rens. Ops, Loading Master, Mooring Master, Barge Master)</li> <li>- Karantina, Bea Cukai, Imigrasi, Pilot/Pandu Kapal, Syahbandar.</li> </ul>	4 jam
12.	Safety	<ul style="list-style-type: none"> <li>- Peralatan &amp; pakaian kerja Survey</li> <li>- Komunikasi, P3K</li> <li>- Daerah berbahaya / terlarang</li> <li>- Pengertian segitiga api termasuk kebakaran, keracunan, electrostatis &amp; K3</li> <li>- Hazards of petroleum <ul style="list-style-type: none"> <li>• Flammability, klasifikasi flammability (non volatile &amp; volatile)</li> <li>• Toxicity</li> </ul> </li> <li>- Pencegahan &amp; pengatasan masalah</li> </ul>	2 jam
13.	Shipping Business	<ul style="list-style-type: none"> <li>- Chartering (sewa-menyewa kapal, dispatch &amp; demurrage)</li> <li>- Marine &amp; Cargo Insurance, Prinsip &amp; Praktek Asuransi,</li> <li>- Dokumen Asuransi, Prosedur Klaim,</li> <li>- Term &amp; condition of cargo &amp; marine policy.</li> </ul>	2 jam
14.	Category of Liquid Cargoes	Karakteristik dari bermacam-macam Liquid Cargo	2 jam
15.	Efforts to prevent oil losses	Mengenal & memahami titik-titik rawan kemungkinan terjadinya Losses	2 jam
16.	Petroleum	Asal, rumus kimia, sifat, tempat penampungan, pengangkutan di darat & di laut, perhitungan berat	3 jam
17.	Caustic Soda	Asal, rumus kimia, sifat, tempat penampungan, pengangkutan di	3 jam

		darat & di laut, perhitungan berat	
18.	Methanol	Asal, rumus kimia, sifat, tempat penampungan, pengangkutan di darat & di laut, perhitungan berat	3 jam
19.	Crude Palm Oil	Asal, rumus kimia, sifat, tempat penampungan, pengangkutan di darat & di laut, perhitungan berat	3 jam
20.	Coconut Oil	Asal, rumus kimia, sifat, tempat penampungan, pengangkutan di darat & di laut, perhitungan berat	2 jam
21.	Terminal Visit	Mengetahui sistem & prosedur pekerjaan di terminal	5 jam
22.	AISI code of ethics	Kode etik perusahaan Independent Surveyor	2 jam
23.	Examination	Evaluasi dari materi-materi yang telah diajarkan	