**KOMPETENSI INTI DAN KOMPETENSI DASAR**

**SEKOLAH MENENGAH KEJURUAN/MADRASAH ALIYAH KEJURUAN**

Bidang Keahlian : Kemaritiman

Program Keahlian : Pelayaran Kapal Niaga

Kompetensi Keahlian : Teknika Kapal Niaga (3 Tahun)

Tujuan kurikulum mencakup empat aspek kompetensi, yaitu (1) aspek kompetensi sikap spiritual, (2) sikap sosial, (3) pengetahuan, dan (4) keterampilan. Aspek-aspek kompetensi tersebut dicapai melalui proses pembelajaran intrakurikuler, kokurikuler, dan ekstrakurikuler.

Rumusan kompetensi sikap spiritual yaitu, “Menghayati dan mengamalkan ajaran agama yang dianutnya”. Sedangkan rumusan kompetensi sikap sosial yaitu, “Menghayati dan mengamalkan perilaku jujur, disiplin, santun, peduli (gotong royong, kerja sama, toleran, damai), bertanggung-jawab, responsif, dan proaktif melalui keteladanan, pemberian nasihat, penguatan, pembiasaan, dan pengkondisian secara berkesinambungan serta menunjukkan sikap sebagai bagian dari solusi atas berbagai permasalahan dalam berinteraksi secara efektif dengan lingkungan sosial dan alam serta dalam menempatkan diri sebagai cerminan bangsa dalam pergaulan dunia”. Kedua kompetensi tersebut dicapai melalui pembelajaran tidak langsung (*indirect teaching*) yaitu keteladanan, pembiasaan, dan budaya sekolah, dengan memperhatikan karakteristik mata pelajaran serta kebutuhan dan kondisi peserta didik.

Penumbuhan dan pengembangan kompetensi sikap dilakukan sepanjang proses pembelajaran berlangsung, dan dapat digunakan sebagai pertimbangan guru dalam mengembangkan karakter peserta didik lebih lanjut.

| **KOMPETENSI INTI 3**  **(PENGETAHUAN)** | **KOMPETENSI INTI 4**  **(KETERAMPILAN)** |
| --- | --- |
| 1. **Memahami, menerapkan, menganalisis,** dan **mengevaluasi** tentang **pengetahuan faktual, konseptual, operasional dasar**, dan **metakognitif** sesuai dengan bidang dan lingkup kerja Teknika Kapal Niaga pada tingkat teknis, spesifik, detil, dan kompleks, berkenaan dengan ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dalam konteks pengembangan potensi diri sebagai bagian dari keluarga, sekolah, dunia kerja, warga masyarakat nasional, regional, dan internasional. | 1. Melaksanakan tugas spesifik dengan menggunakan alat, informasi, dan prosedur kerja yang lazim dilakukan serta memecahkan masalah sesuai dengan bidang kerja Teknika Kapal Niaga. Menampilkan kinerja di bawah bimbingan dengan mutu dan kuantitas yang terukur sesuai dengan standar kompetensi kerja.   Menunjukkan keterampilan menalar, mengolah, dan menyaji secara efektif, kreatif, produktif, kritis, mandiri, kolaboratif, komunikatif, dan solutif dalam ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah, serta mampu melaksanakan tugas spesifik di bawah pengawasan langsung.  Menunjukkan keterampilan mempersepsi, kesiapan, meniru, membiasakan, gerak mahir, menjadikan gerak alami dalam ranah konkret terkait dengan pengembangan dari yang dipelajarinya di sekolah, serta mampu melaksanakan tugas spesifik di bawah pengawasan langsung. |

Mata Pelajaran: Dinas Jaga Mesin dan Kepedulian Keamanan *(Watchkeeping and Security Awareness)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 1. Explain principles to be observed in an engineering watch at sea and in port | 1. Demonstrate principles to be observed in an engineering watch at sea and in port | 10 | IMC 7.04  1.1.1.1 principles to be observed in an engineering watch at sea and in port | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 1. Explain duties associated with taking over a watch and accepting a watch | 1. Demonstrate duties associated with taking over a watch and accepting a watch | 15 | IMC 7.04  1.1.1.2  duties associated with taking over a watch and accepting a watch |
| 1. Explain routine duties undertaken during a watch | 1. Demonstrate routine duties undertaken during a watch | 15 | IMC 7.04  1.1.1.3 routine duties undertaken during a watch |
| 1. Explain maintenance the machinery space logs and the significance of the readings taken | 1. Demonstrate maintenance of the machinery space logs and the significance of the readings taken | 15 | IMC 7.04  1.1.1.4 maintenance of the machinery space logs and the significance of the readings taken |
| 1. Explain duties associated with handing over a watch | 1. Show of duties associated with handing over a watch | 10 | IMC 7.04  1.1.1.5  duties associated with handing over a watch |
| 1. Explain standards / regulations for watchkeeping in a national law | 1. Discrebe standards / regulations for watchkeeping in a national law | 10 | IMC 7.04  1.1.1.6 standards / regulations for watchkeeping in a national law |
| 1. Analyze states the importance, ordinance and arrangements of watchkeeping | 1. Discrebe states the importance, ordinance and arrangements of watchkeeping | 10 | IMC 7.04  1.1.1.7 states the importance, ordinance and arrangements of watchkeeping |
| 1. Analyze fatigue in watchkeeping | 1. Formulate the causes of fatigue in watchkeeping | 10 | IMC 7.04  1.1.1.8  fatigue in watchkeeping |
| **JUMLAH JAM** | | **90** |  |

Mata Pelajaran: Mesin Penggerak Utama *(Main Propulsion Engine)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 1. Explain marine diesel engine | 1. Identified marine diesel engine | 5 | IMC 7.04  1.4.1.1 marine diesel engine | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi |
| 1. Explain Heat-engine cycle | 1. Show Heat-engine cycle | 8 | IMC 7.04  1.4.1.1.1 Heat-engine cycle |
| 1. Explain ideal gas cycle | 1. Show ideal gas cycle | 8 | IMC 7.04  1.4.1.1.2  ideal gas cycle |
| 1. Describe diesel engine fuel atomization and combustion | 1. Show diesel engine fuel atomization and combustion | 15 | IMC 7.04  1.4.1.1.3  diesel engine fuel atomization and combustion |
| 1. Explain engine types | 1. Identified engine types | 15 | IMC 7.04  1.4.1.1.4  engine types | ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 1. Explain engine principles | 1. Identified engine principles | 15 | IMC 7.04  1.4.1.1.4  engine principles |
| 1. Explain basic construction | 1. Show basic construction | 15 | IMC 7.04  1.4.1.1.5  basic construction |
| 1. Explain marine steam turbine | 1. Identified marine steam turbine | 15 | IMC 7.04  1.4.1.2 marine steam turbine |
| 1. Explain marine gas turbine | 1. Identified marine gas turbine | 15 | IMC 7.04  1.4.1.3 marine gas turbine |
| 1. Explain marine boiler | 1. Identified marine boiler | 15 | IMC 7.04  1.4.1.4 marine boiler |
| 1. Describe shafting installation | 1. Show shafting installation | 15 | IMC 7.04  1.4.1.5 shafting installation |
| 1. Explain automatic control system | 1. Show automatic control system | 15 | IMC 7.04  1.4.1.8 automatic control system |
| 1. Describe fluid flow and characteristic of major systems | 1. Identified fluid flow and characteristic of major systems | 15 | IMC 7.04  1.4.1.9  fluid flow and characteristic of major |
| 1. Explain main engine auto slow down and shut down | 1. Demonstrate main engine auto slow down and shut down | 15 | IMC 7.04  1.4.2.1  main engine auto slow down and shut down |
| 1. Explain main engine manual emergency slow down and shut down | 1. Demonstrate main engine manual emergency slow down and shut down | 15 | IMC 7.04  1.4.2.1  main engine manual emergency slow down and shut down |
| 1. Explain main boiler auto shut down | 1. Demonstrate main boiler auto shut down | 15 | IMC 7.04  1.4.2.2  main boiler auto shut down |  |
| 1. Explain main engine and associated auxiliaries | 1. Identified main engine and associated auxiliaries | 15 | IMC 7.04  1.4.3.1  main engine and associated auxiliaries |
| 1. Explain boiler and associated auxiliaries and steam system | 1. Identified boiler and associated auxiliaries and steam system | 15 | IMC 7.04  1.4.3.2  boiler and associated auxiliaries and steam system |
| **JUMLAH JAM** | | **246** |  |

Mata Pelajaran: Permesinan Bantu *(Auxiliary Machinery)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 1. Explain Various pums | 1. Identified Various pums | 10 | IMC 7.04  1.4.1.6.1  Various pums | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 1. Explain refrigeration | 1. Show refrigeration | 16 | IMC 7.04  1.4.1.6.2  refrigeration |
| 1. Explain air conditioning and ventilation systems | 1. Identified air conditioning and ventilation systems | 16 | IMC 7.04  1.4.1.6.3  air conditioning and ventilation systems |
| 1. Explain heat exchanger | 1. Show heat exchanger | 12 | IMC 7.04  1.4.1.6.4  heat exchanger |
| 1. Explain evaporators and distiller | 1. Show evaporators and distiller | 12 | IMC 7.04  1.4.1.6.5  evaporators and distiller |
| 1. Describe air compressor and system principles | 1. Show air compressor and system principles | 16 | IMC 7.04  1.4.1.6.6  air compressor and system principles |
| 1. Explain purifier and fuel oil treatment | 1. Identified purifier and fuel oil treatment | 16 | IMC 7.04  1.4.1.6.7  purifier and fuel oil treatment |
| 1. Explain windlass / moorning winch | 1. Demonstrate windlass / moorning winch | 16 | IMC 7.04  1.4.1.10.1  windlass / moorning winch |
| 1. Explain winch | 1. Show of winch | 10 | IMC 7.04  1.4.1.10.2  winch |
| 1. Explain boat winch | 1. Show of boat winch | 10 | IMC 7.04  1.4.1.10.3  boat winch |
| 1. Explain auxiliary prime mover and associated system | 1. Identified auxiliary prime mover and associated system | 16 | IMC 7.04  1.4.3.3  auxiliary prime mover and associated system |
| 1. Explain other auxiliary | 1. Identified other auxiliary | 16 | IMC 7.04  1.4.3.4  other auxiliary |
| 1. Explain operational characterics of pumps and piping systems including control systems | 1. Identified operational characterics of pumps and piping systems including control systems | 16 | IMC 7.04  1.5.1  Identified operational characterics of pumps and piping systems including control systems |
| 1. Explain routine pumping operations | 1. Demonstrate routine pumping operations | 16 | IMC 7.04  1.5.2.1  routine pumping operations |
| 1. Explain operation bilge pump | 1. Demonstrate operation bilge pump | 16 | IMC 7.04  1.5.2.2  operation of bilge pump |
| 1. Explain operation of ballast pump | 1. Demonstrate operation of ballast pump | 16 | IMC 7.04  1.5.2.3  operation of ballast pump |
| 1. Explain operation of cargo pump | 1. Explain operation of cargo pump | 16 | IMC 7.04  1.5.2.4  operation of cargo pump |
| 1. Explain oily water separator /similar equipment requirement and operation | 1. Demonstrate oily water separator /similar equipment requirement and operation | 16 | IMC 7.04  1.5.3  oily water separator /similar equipment requirement and operation |
| **JUMLAH JAM** | | **262** |  |

Mata Pelajaran: Sistem Kelistrikan Kapal *(Marine Electrical System)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Explain ohm’s law | 4.1 Apply Ohm’s law | 8 | IMC 7.04  2.1.1.1  Ohm’s law | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Explain kirchhoff’s law | 4.2 Apply kirchhoff’s law | 8 | IMC 7.04  2.1.1.2  kirchhoff’s law |
| 3.3 Explain Electrical circuit | 4.3 Identified Electrical circuit | 8 | IMC 7.04  2.1.1.3  Electrical circuit |
| 3.4 Explain impedance and inductance | 4.4 Identified impedance and inductance | 12 | IMC 7.04  2.1.1.4  impedance and inductance |
| 3.5 Describes safety requirements for working on electrical system | 4.5 Show safety requirements for working on electrical system | 16 | IMC 7.04  2.2.1  safety requirements for working on electrical system |
| 3.6 Explain principles maintenance | 4.6 Apply principles maintenance | 8 | IMC 7.04  2.2.2.1  Principles of maintenance |
| 3.7 Explain generator | 4.7 Identified generator | 12 | IMC 7.04  2.2.2.2  generator |
| 3.8 Explain switchboard | 4.8 Identified switchboard | 12 | IMC 7.04  2.2.2.3  switchboard |
| 3.9 Explain electrical motors | 4.9 Identified electrical motors | 16 | IMC 7.04  2.2.2.4  electrical motors |
| 3.10 Explain fault protection | 4.10 Show fault protection | 12 | IMC 7.04  2.2.3.1  fault protection |
| 3.11 Explain fault location | 4.11 Show fault location | 12 | IMC 7.04  2.2.3.2  fault location |
| 3.12 Explain insulation tester | 4.12 Show insulation tester | 12 | IMC 7.04  2.2.4.1  insulation tester |
| 3.13 Explain multi-tester | 3.13 Use multi-tester | 18 | IMC 7.04  2.2.4.2  multi-tester |
| 3.14 Explain clampmeter | 3.14 Use clampmeter | 18 | IMC 7.04  2.2.4.3  clampmeter |
| 3.15 Explain electrical and simple electronic diagrams | 3.15 Make electrical and simple electronic diagrams | 24 | IMC 7.04  2.2.6  electrical and simple electronic diagrams |
| **JUMLAH JAM** | | **192** |  |

Mata Pelajaran: Elektronika *(Electronics)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Explain of electron theory | 4.1 Apply of electron theory | 8 | IMC 7.04  2.1.2.1  electron theory | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Explain of semiconductor | 4.2 Identified of semiconductor | 8 | IMC 7.04  2.1.2.2.1  semiconductor |
| 3.3 Explain of thyristor | 4.3 Identified of thyristor | 8 | IMC 7.04  2.1.2.2.2  thyristor |
| 3.4 Explain of Integrated Circuit (IC) and Large Scale Integrated Circuit (LSI) | 4.4 Identified of Integrated Circuit (IC) and Large Scale Integrated Circuit (LSI) | 12 | IMC 7.04  2.1.2.2.3  Integrated Circuit (IC) and Large Scale Integrated Circuit (LSI) |
| 3.5 Describes of electronic control equipment | 4.5 Show of electronic control equipment | 12 | IMC 7.04  2.1.2.3  electronic control equipment |
| 3.6 Describes of flowcharts for automatic and control systems | 4.6 Make of flowcharts for automatic and control systems | 12 | IMC 7.04  2.1.2.4  flowcharts for automatic and control systems |
| 3.7 Explain of monitoring system | 4.7 Show of monitoring system | 12 | IMC 7.04  2.2.5.1  monitoring system |
| **JUMLAH JAM** | | **72** |  |

Mata Pelajaran: Sistem Kontrol (*Control System)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Explain fundamentals automatic control | 4.1 Apply fundamentals automatic control | 4 | IMC 7.04  2.1.3.1  fundamentals automatic control | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Describe various automatic controls | 4.2 Show various automatic controls | 8 | IMC 7.04  2.1.3.2  various automatic controls |
| 3.3 Explain ON-OFF control | 4.3 Use of ON-OFF control | 8 | IMC 7.04  2.1.3.3  ON-OFF control |
| 3.4 Explain sequential control | 4.4 Identifies of sequential control | 8 | IMC 7.04  2.1.3.4  sequential control |
| 3.5 Explain Proportional-Integral-Derivative (PID) Control | 4.5 Use Proportional-Integral-Derivative (PID) Control | 10 | IMC 7.04  2.1.3.5  Proportional-Integral-Derivative (PID) Control |
| 3.6 Describe measurement process value | 4.6 Use measurement process value | 8 | IMC 7.04  2.1.3.6  measurement of process value |
| 3.7 Explain transmission signals | 4.7 Use transmission signals | 8 | IMC 7.04  2.1.3.7  transmission of signals |
| 3.8 Explain manipulator element | 4.7 Show manipulator element | 8 | IMC 7.04  2.1.3.8  manipulator element |
| 3.9 Explain automatic control devices (process control and system control) | 4.8 Show automatic control system (process control and system control) | 10 | IMC 7.04  2.2.5.2  automatic control system (process control and system control) |
| 3.9 Explain protective devices | 4.9 Identifies protective devices | 8 | IMC 7.04  2.2.5.3  protective devices |
| **JUMLAH JAM** | | **72** |  |

Mata Pelajaran: Ilmu Bahan *(Fabrication and Repair Material)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Explain basic Metallurgy, Metals and Processes | 4.1 Identifies basic Metallurgy, Metals and Processes | 15 | IMC 7.04  3.1.1.1  Basic metallurgy, metals and processes | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Explain properties and uses | 4.2 Show properties and uses | 15 | IMC 7.04  3.1.1.2  properties and uses |
| 3.3 Explain Non-metallic materials | 4.3 Show Non-Metallic Materials | 15 | IMC 7.04  3.1.1.3  Non-metallic materials |
| 3.4 Describe the heat treatment processes and the types of steel | 4.4 Show the heat treatment processes and the types of steel | 15 | IMC 7.04  3.1.2.1  the heat treatment processes and the types of steel |
| 3.5 Describe the heat treatment of carbon steel | 4.5 Show the heat treatment of carbon steel | 15 | IMC 7.04  3.1.2.2  the heat treatment of carbon steel |
| 3.6 Explain material under load | 4.6 Show material under load | 15 | IMC 7.04  3.1.3.1  material under load |
| 3.7 Explain vibration | 4.7 Identifies of vibration | 15 | IMC 7.04  3.1.3.2  vibration |
| 3.8 Explain self-secure joints | 4.8 Make self-secure joints | 15 | IMC 7.04  3.1.3.3  self-secure joints |
| 3.9 Explain permanent joint | 4.9 Make permanent joint | 15 | IMC 7.04  3.1.3.4  permanent joint |
| 3.10 Explain bonding plastics | 3.10 Show bonding plastics | 15 | IMC 7.04  3.1.3.5  permanent joint |
| 3.11 Explain adhesives and bonding health and safety | 3.11 Apply adhesives and bonding health and safety | 15 | IMC 7.04  3.1.3.6  adhesives and bonding health and safety |
| 3.12 Explain pipework | 3.12 Show of pipework | 15 | IMC 7.04  3.1.3.6  Pipework |
| **JUMLAH JAM** | | **180** |  |

Mata Pelajaran: Perbengkelan *(Use of Hand and Powertools)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Explain safety measures to be taken to ensure a safety working environment and for using hand tools, machine tools and measuring instruments | 4.1 Show safety measures to be taken to ensure a safety working environment and for using hand tools, machine tools and measuring instruments | 4 | IMC 7.04  3.1.5  safety measures to be taken to ensure a safety working environment and for using hand tools, machine tools and measuring instruments | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Describe hand tools | 4.2 Use hand tools | 20 | IMC 7.04  3.1.6.1  hand tools |
| 3.3 Explain powered hand tools | 4.3 Demonstrates powered hand tools | 20 | IMC 7.04  3.1.6.2  powered hand tools |
| 3.4 Explain drilling machines | 4.4 Use Drilling machines | 20 | IMC 7.04  3.1.6.3.1  drilling machines |
| 3.5 Explain grinding machine | 4.5 Use grinding machine | 20 | IMC 7.04  3.1.6.3.2  grinding machine |
| 3.6 Explain center lathe | 4.6 Use center lathe | 20 | IMC 7.04  3.1.6.3.3  center lathe |
| 3.7 Explain welding and soldering | 4.7 Use welding and soldering | 20 | IMC 7.04  3.1.6.3.4  welding and soldering |
| 3.8 Explain measuring instrument | 4.6 Use measuring instrumen | 14 | IMC 7.04  3.1.6.4  measuring instrumen |
| 3.9 Explain varius types sealants and packing | 4.7 Use varius types sealants and packing | 14 | IMC 7.04  3.1.7  varius types sealants and packing |
| **JUMLAH JAM** | | **152** |  |

Mata Pelajaran: Perawatan & Perbaikan Permesinan Kapal *(Marine Engineering Maintenance and Repair)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Explain maintenance and repair methods | 4.1 Apply of maintenance and repair methods | 4 | IMC 7.04  3.1.4  Methods for carrying out safe emergency / temporary repair | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Explain ISM Code (International Safety Management) | 4.2 Apply ISM Code (International Safety Management) | 5 | IMC 7.04  3.2.1.1  ISM Code (International Safety Management) |
| 3.3 Explain SMS (Safety Management System) | 4.3 Apply SMS (Safety Management System) | 5 | IMC 7.04  3.2.1.2  SMS (Safety Management System) |
| 3.4 Understand safety measures to be taken | 4.4 Show safety measures to be taken | 10 | IMC 7.04  3.2.1.3  safety measures to be taken |
| 3.5 Explain appropriate basic mechanical knowledge and skills | 4.5 Apply the appropriate basic mechanical knowledge and skills | 10 | IMC 7.04  3.2.2  appropriate basic mechanical knowledge and skills |
| 3.6 Explain fastening | 4.6 Identifies fastening | 10 | IMC 7.04  3.2.3  Maintenance and repair such as dismantling, adjustment and reassembling of machinery and equipment |
| 3.7 Explain maintenance and repair centrifugal pump | 4.7 Demonstrat maintenance and repair centrifugal pump | 20 |
| 3.8 Explain maintenance and repair reciprocating pump | 4.8 Demonstrat maintenance and repair reciprocating pump | 20 |
| 3.9 Explain maintenance and repair screw and gear pump | 4.9 Demonstrat maintenance and repair screw and gear pump | 20 |
| 3.10 Explain maintenance and repair valve | 4.10 Demonstrat maintenance and repair valve | 20 |
| 3.11 Explain maintenance and repair air compressors | 4.11 Demonstrat maintenance and repair air compressors | 20 |
| 3.12 Explain maintenance and repair heat exchangers | 4.12 Demonstrat maintenance and repair heat exchangers | 20 |
| 3.13 Explain maintenance and repair diesel engine | 4.13 Demonstrat maintenance and repair diesel engine | 20 |
| 3.14 Explain maintenance and repair Turbocharger | 4.14 Demonstrat maintenance and repair Turbocharger | 20 |
| 3.15 Explain maintenance and repair boiler | 4.15 Demonstrat maintenance and repair boiler | 20 |
| 3.16 Explain maintenance and repair shafting system | 4.16 Demonstrat maintenance and repair shafting system | 20 |
| 3.17 Explain maintenance and repair refrigerator | 4.17 Demonstrat maintenance and repair refrigerator | 20 |
| 3.18 Explain maintenance and repair oils, fuels and lubricating system | 4.18 Demonstrat maintenance and repair oils, fuels and lubricating system | 20 |
| 3.19 Explain maintenance and repair deck machinery | 4.19 Demonstrat maintenance and repair deck machinery | 10 |
| 3.20 Explain appropriate specialized tools and measuring instrument | 4.20 Apply appropriate specialized tools and measuring instrument | 5 | IMC 7.04  3.2.4  appropriate specialized tools and measuring instrument |
| 3.21 Explain selection materials in construction of equipment | 4.21 Demonstrat selection materials in construction of equipment | 5 | IMC 7.04  3.2.5  Desain characteristic and selection of material in contruction of equipment |
| 3.22 Explain design characteristic of engine | 4.22 Show design characteristic of engine | 5 |
| 3.23 Explain design characteristic of bearings | 4.23 Show design characteristic of bearings | 5 |
| **JUMLAH JAM** | | **314** |  |

Mata Pelajaran: Desain dan Gambar Permesinan Kapal *(Marine Engineering Drawing and Design)*

| **KOMPETENSI DASAR** | **KOMPETENSI DASAR** | **WAKTU** | **UNIT KOMPETENSI** | **SKEMA SERTIFIKASI** |
| --- | --- | --- | --- | --- |
| 3.1 Describe types of drawing | 4.1 Show types of drawing | 8 | IMC 7.04  3.2.6.1 Types of drawing | Peserta didik menempuh seluruh kompetensi dan mengikuti ujian keahlian pelaut serta dinyatakan LULUS maka Peserta didik akan mendapatkan sertifikat kompetensi ATT IV (Ahli Teknika Tingkat IV) yang dikeluarkan oleh Direktorat Jenderal Perhubungan Laut |
| 3.2 Explain Linework | 4.2 Make Linework | 12 | IMC 7.04  3.2.6.2 Linework |
| 3.3 Analyze pictorial projection | 4.3 Make pictorial projection | 15 | IMC 7.04  3.2.6.3 Pictorial projection |
| 3.4 Explain development of 90° intersection circular trucking | 4.4 Make development of 90° intersection circular trucking | 15 | IMC 7.04  3.2.6.4 Development |
| 3.5 Explain dimensioning | 4.5 Show dimensioning | 12 | IMC 7.04  3.2.6.5 Dimensioning |
| 3.6 Explain geometrical tolerances | 4.6 Apply geometrical tolerance | 10 | IMC 7.04  3.2.6.6 Geometrical tolerance |
| 3.7 Describe limits and fits | 4.7 Show Limits and Fits | 20 | IMC 7.04  3.2.6.7 Limits and fits |
| 3.8 Describe engineering drawing practice | 4.8 Make engineering drawing practice | 30 | IMC 7.04  3.2.6.8 Engineering drawing practice |
| 3.9 Describe piping, hydraulic and pneumatic diagrams | 4.9 Make piping, hydraulic and pneumatic diagrams | 30 | IMC 7.04  3.2.7 The interpretation piping, hydraulic and pneumatic diagrams |
| **JUMLAH JAM** | | **152** |  |