



سازمان بنادر و دریانوردی

دستور العمل اجرایی برگزاری دوره آموزشی و آزمون مهارت دریانوردی سمت

ملوان ماهر موتورخانه بر روی کشتی های با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود

*The Code of Practice for conducting Able Seafarer Engine on Ships of
Propulsion Power KW ≥ 750 Engaged on Unlimited Voyages
Training Course and Competency Assessment*

کد مدرک : P6-W134

شماره بازنگری	تاریخ بازنگری	شرح تغییرات (علت و مصل)	تهیه کننده	تأیید کننده	تصویب کننده
۰۰	۹۳/۰۶/۱۰	براساس بازنگری کلی کنوانسیون STCW 78, As Amended	رئیس اداره استانداردهای دریانوردان نصرت اله علی پور	مدیرکل امور دریانوردان حسین میرزایی	معاون امور دریایی سید علی استیری

صفحه: ۱ از ۱۳





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مقدمه

سازمان بنادر و دریانوردی در اجرای وظایف و اختیارات قانونی ناشی از ماده ۱۹۲ قانون دریایی جمهوری اسلامی ایران مصوب شهریور ماه ۱۳۴۳ و بند ۱۰ ماده ۳ آیین نامه تشکیل سازمان بنادر و دریانوردی مصوب بهمن ماه ۱۳۴۸ کمیسیون های خاص دو مجلس که صدور هرگونه سند یا گواهینامه و پروانه مربوط به کشتی، فرماندهان، افسران و کارکنان کشتی ها را در صلاحیت این سازمان قرار داده و در راستای رعایت مفاد کنوانسیون بین المللی استانداردهای آموزش، صدور گواهینامه و نگرهبانی دریانوردان (STCW- as amended) مصوب مرداد ماه سال ۱۳۷۵ مجلس شورای اسلامی ایران و با عنایت به مقرره A-III/5 کنوانسیون مذکور و بخش A-III/5 آیین نامه کنوانسیون مربوطه، این "دستورالعمل اجرایی برگزاری دوره آموزشی و آزمون مهارت دریانوردی سمت " ملوان ماهر موتورخانه بر روی کشتیهای با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود " را تدوین نموده و پس از تصویب هیأت عامل قابل اجرا می باشد.

یادداشت: قانون تغییر نام سازمان بنادر و دریانوردی و کشتیرانی به سازمان بنادر و دریانوردی

در تاریخ ۱۳۸۷/۰۲/۱۰ به تصویب مجلس شورای اسلامی رسید.



۱- هدف از تدوین

هدف از تدوین این دستور العمل ارائه حداقل نیازمندیهای برگزاری دوره های آموزشی و آزمونهای شایستگی دریانوردی سمت ملوان ماهر موتورخانه بر روی کشتی های با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود می باشد

۲- دامنه کاربرد

این دستور العمل برای کلیه مراکز آموزشی مورد تایید سازمان و مجری برگزاری دوره آموزش سمت ملوان ماهر موتور بر روی کشتی های با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود کاربرد دارد.

۳- تعاریف

اصطلاحات استفاده شده در راستای اهداف این دستورالعمل دارای معانی ذیل می باشند.

۱-۳ ملوان ماهر موتورخانه (Able Seafarer Engine):

به معنای عضوی از خدمه کشتی در بخش موتور خانه می باشد که بر اساس مفاد این دستورالعمل واجد شرایط باشد

۲-۳ تایید (Approved):

به معنای تایید اداره استانداردهای دریانوردان مطابق با دستورالعمل های سازمان می باشد.

۳-۳ دستگاه نظارت مرکز (Central Monitoring Office):

به معنای اداره یا بخشی که وظیفه صدور مجوز فعالیت آموزش دریانوردی و نظارت بر مراکز آموزشی را بر عهده دارد. دستگاه نظارت در ستاد سازمان ، اداره استانداردهای دریانوردان می باشد. مدیر کل امور دریانوردان نیز جزء دستگاه نظارت مرکز بوده و می تواند صدور مجوز فعالیت آموزش دریانوردی و نظارت بر مراکز آموزش دریانوردان را تایید نماید.

۴-۳ گواهینامه دریانوردی (Certificate):

به معنای گواهینامه ای به غیر از گواهینامه شایستگی یا گواهینامه مهارت صادر شده طبق مفاد دستورالعمل صدور ، تمدید و تجدید گواهینامه های دریانوردان برای دریانورد است که نشان می دهد شایستگی خدمت در سمت مندرج را دارد.

۵-۳ دستورالعمل (Code of Practice):

به معنای مجموعه قوانین ، مقررات ملی و الزامات مندرج در این دستورالعمل است که توسط اداره کل امور دریانوردان تدوین و به تصویب هیات عامل سازمان رسیده است.



۳-۶ شرکت کشتیرانی (Company):

به معنای مالک کشتی، هر شخصی مانند مدیر، یا اجاره کننده در بست کشتی است، که مسئولیت عملیات کشتی از طرف مالک کشتی بر وی فرض شده است، و با قبول چنین مسئولیتی، کلیه وظایف و مسئولیت‌های محول شده بر شرکت توسط این دستورالعملها را بر عهده گرفته است.

۳-۷ کنوانسیون (Convention):

به معنای کنوانسیون اصلاح شده بین المللی استانداردهای آموزشی، صدور گواهینامه و نگهبانی دریانوردان (STCW-78 as amended) می باشد.

۳-۸ گواهی طی دوره (Course Completion Certificate or Documentary Evidence):

به معنای گواهی است که مرکز آموزشی مورد تایید سازمان به فراگیر پس از گذراندن موفقیت آمیز دوره مربوطه ارائه می دهد.

۳-۹ گواهینامه مهارت دریانوردی (Certificate of Proficiency):

به معنای گواهینامه‌ای به غیر از گواهینامه شایستگی صادر شده طبق مفاد دستورالعمل صدور ، تمدید و تجدید گواهینامه های دریانوردان برای دریانورد است که نشان می دهد الزامات آموزشی، شایستگی‌ها یا خدمت دریایی مندرج در کنوانسیون را برآورده می نماید.

۳-۱۰ ملوان موتورخانه (Engine Rating):

به معنای عضوی از خدمه کشتی در بخش موتورخانه می باشد که بر اساس مفاد این دستورالعمل واجد شرایط باشد.

۳-۱۱ کارکرد (Function):

به معنای مجموعه ای از امور ، وظایف و مسئولیت ها جهت انجام عملیات در کشتی، ایمنی جان اشخاص در دریا و حفاظت از محیط زیست که در آیین نامه STCW درج شده است، می باشد.

۳-۱۲ ملوان عمومی (General Rating):

به معنای عضوی از خدمه کشتی در بخش عرشه است که بر اساس مفاد دستورالعمل صدور ، تمدید و تجدید گواهینامه های دریانوردان واجد شرایط باشد.

۳-۱۳ آئین نامه ی امنیت کشتی ها (ISPS Code):

به معنای آئین نامه بین المللی امنیت کشتی ها و تسهیلات بندری است که در تاریخ ۲۰۰۲ میلادی طی قطعنامه شماره ۲ کنفرانس دولتهای متعاقد به کنوانسیون بین المللی ایمنی جان اشخاص در دریا ۱۹۷۴ (SOLAS) به تصویب رسیده و ممکن است توسط سازمان بین المللی دریانوردی براساس اصلاحیه های بعدی تغییر یابد.

۳-۱۴ فرمانده (Master):

به معنای شخصی است که عهده دار فرماندهی کشتی می باشد.

۳-۱۵ گواهینامه سلامت پزشکی (Medical Fitness Certificate):

به معنای گواهینامه ای است که توسط پزشک معتمد سازمان طبق دستورالعمل مربوطه و جهت متقاضیانی که از نظر پزشکی از سلامت برخوردار باشند، صادر می گردد.

۳-۱۶ کشتی تجاری (Merchant Ship):

به معنای هر نوع شناوری است (به استثنای شناورهای خدماتی، سکوهای متحرک فراساحلی، صیادی و یا نظامی) که در امر جابجایی کالاهای تجاری، مسافر و بار تسهیلات مربوط به کالاهای تجاری بکار گرفته می شود.

۳-۱۷ گواهینامه حداقل پرسنل ایمن (Minimum Safe Manning Certificate):

به معنای گواهینامه ای است که در آن حداقل پرسنل ایمن یک شناور تعیین و توسط سازمان تایید می گردد.

۳-۱۸ ماه (Month):

جهت محاسبه خدمت دریایی هر ماه متشکل از ۳۰ روز می باشد.

۳-۱۹ سفرهای نزدیک به ساحل (Near Coastal Voyages / NCV):

به معنای سفرهایی است که در آبهای خلیج فارس، دریای خزر و محدوده تعریف شده در دریای عمان (آبهای واقع در غرب خطی که نقطه جغرافیایی با مشخصات ۲۲ درجه و ۳۲ دقیقه شمال و ۵۹ درجه و ۴۸ دقیقه شرق «راس الحد- عمان» را به نقطه جغرافیایی دارای مشخصات ۲۵ درجه و ۴ دقیقه شمال و ۶۱ درجه و ۲۲ دقیقه شرق «گواتر- ایران» وصل می نماید) انجام می شود.

۳-۲۰ دفترچه کارورزی در کشتی (On Board Training Record Book):

به معنای دفترچه کارورزی مورد تایید سازمان می باشد که آموزشهای عملی و تئوری دریانورد میبایست بر اساس مفاد مندرج در آن تکمیل گردد.



۳-۲۱ دستگاه نظارت بندر (Port's Monitoring Office):

به معنای معاونتی که اداره امتحانات و اسناد دریانوردان بنادر زیر مجموعه آن می باشد و به نیابت از اداره استانداردهای دریانوردان، وظیفه صدور مجوز دوره های آموزشی و نظارت بر مراکز آموزشی محل استان جغرافیایی خود را به عهده دارد. اداره یا بخشهای دیگر در مجموعه معاونت مربوطه به عنوان دستگاه نظارت محسوب نمی گردند.

۳-۲۲ سازمان (Ports & Maritime Organization):

به معنای سازمان بندر و دریانوردی جمهوری اسلامی ایران می باشد.

۳-۲۳ ملوان (Rating):

به معنای عضوی از خدمه ی کشتی به غیر از فرمانده یا افسر می باشد.

۳-۲۴ مقررات (Regulations):

به معنای مجموعه مقررات مندرج در کنوانسیون و آئین نامه می باشد.

۳-۲۵ خدمت دریایی (Seagoing Service):

به معنای مدت زمان دریانوردی بر روی کشتی است که می بایست مرتبط با صدور و یا تجدید گواهینامه های شایستگی و یا مهارت در یانوردان می باشد.

۳-۲۶ گواهی خدمت دریایی (Seagoing Service/ Documentary Evidence):

به معنای تأییدیه خدمت دریایی دریانوردان جهت شرکت در دوره های آموزشی، آزمونهای دریانوردی و صدور گواهینامه های دریانوردی می باشد که علاوه بر ثبت در شناسنامه دریانوردی، توسط شرکت کشتیرانی / مالک کشتی و یا اتحادیه مالکان کشتیها به صورت فرم کامپیوتری (computer sheet)، نامه اداری شماره شده و یا فرم تعریف شده (به ضمیمه این دستورالعمل) قابل ارائه می باشد.

۳-۲۷ کشتی دریا پیمای (Seagoing Ship):

به معنای کشتی است به غیر از آنهائیکه منحصراً در آبهای سرزمینی، نزدیک یا مجاور آبهای پناه گاهی و یا مناطق مشمول مقررات بندری، تردد میکنند.

۳-۲۸ آئین نامه ی کنوانسیون (STCW Code):

به معنای آئین نامه ی استانداردهای آموزش، صدور گواهینامه و نگهبانی دریانوردان که طی قطعنامه ی شماره ۲ کنفرانس سال ۱۹۹۵ میلادی تصویب و ممکن است توسط سازمان بین المللی دریانوردی بر اساس اصلاحیه های بعدی تغییر یابد، می باشد.



۲۹-۳ سطح پشتیبانی (Support Level):

به معنای سطحی از مسئولیت اطلاق می گردد که وظایف، تکالیف و مسئولیتهای محوله بر روی کشتی را تحت نظر افراد سطح مدیریتی و یا عملیاتی انجام می پذیرد.

۳۰-۳ مرکز آموزشی (Training Center):

به معنای دانشگاه، شرکت، موسسه یا هر ارگانی که بر اساس مجوز اخذ شده از سازمان در زمینه آموزشهای دریانوردی فعالیت می کند.

۳۱-۳ سفرهای نامحدود (Unlimited Voyages):

به معنای سفرهای بین المللی که محدود به سفرهای نزدیک به ساحل نباشد.

۴- مسئولیت ها

۴-۱ مسئولیت بازرنگری این دستورالعمل بر عهده دستگاه نظارت مرکز می باشد.

۴-۲ مسئولیت تایید اصلاحیه ها به این دستورالعمل بر عهده اداره کل امور دریانوردان می باشد.

۴-۳ مسئولیت تصویب اصلاحیه ها به این دستورالعمل بر عهده معاون امور دریایی به نیابت از هیات عامل سازمان می باشد.

۴-۴ مسئولیت اجرای کامل دوره آموزشی بر اساس عناوین اعلام شده بر عهده مرکز آموزشی می باشد.

۴-۵ مسئولیت نظارت بر حسن اجرای این دستورالعمل در مراکز آموزشی دریانوردی بر عهده دستگاه نظارت مرکز می باشد.

۵- روش اجرا

۵-۱ هدف از برگزاری دوره آموزشی

هدف از برگزاری این دوره آموزشی ، آماده نمودن فراگیران برای کسب شایستگی ها و مهارت های مندرج در ستون ۱ از جدول بخش III/5 - الف می باشد.

۵-۲ طول دوره

۵-۲-۱ طول دوره حداقل ۲۵۰ ساعت ، که شامل ۱۷۰ ساعت به صورت نظری (تئوری) و ۸۰ ساعت عملی (بدون احتساب مدت زمان آموزش کارورزی) می باشد.

۵-۲-۲ حداکثر مدت زمان آموزش روزانه برای هر فراگیر ۸ ساعت می باشد..





۳-۵- تعداد شرکت کنندگان در دوره

۱-۳-۵- حداکثر فراگیران شرکت کننده در هر دوره ۲۰ نفر می باشد.

۲-۳-۵- در صورت افزایش حداقل فضا، تجهیزات و امکانات مرتبط کمک آموزشی بر اساس دستورالعمل صدور مجوز و نظارت بر اجرای دوره ها در مرکز آموزشی دریانوردی و پس از اخذ تاییدیه از دستگاه نظارت ذریبط، تعداد شرکت کنندگان دوره می تواند حداکثر تا ۳۰ نفر افزایش یابد.

۴-۵- شرایط ورود به دوره

۱-۴-۵- دارا بودن حداقل سن ۱۸ سال

۲-۴-۵- دارا بودن گواهینامه سلامت پزشکی معتبر بر اساس دستورالعمل مصوب سازمان

۳-۴-۵- دارا بودن حداقل مدرک تحصیلی سوم راهنمایی و یا مدرک تحصیلی همتر از با نظام آموزشی کشور و مورد تایید وزارت آموزش و پرورش

۴-۴-۵- دارا بودن گواهینامه مهارت ملوان موتورخانه بر روی کشتیهای با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود؛ و

۵-۴-۵- دارا بودن حداقل ۱۸ ماه خدمت دریایی در سمت ملوان موتورخانه بر روی کشتیهای با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود .

۵-۵- دانش ، درک و مهارت مورد انتظار

۱-۵-۵- آشنایی با اصطلاحات رایج و اسامی تجهیزات موتور خانه و طرز کار آنها

۲-۵-۵- برقراری نگهداری ایمن با توجه به وظایف محوله

۳-۵-۵- استفاده از ابزارهای دستی و برقی و آشنایی با کارکرد موتور اصلی و تجهیزات جانبی

۴-۵-۵- آشنایی با سیستمهای لوله کشی و توانایی اتصال و جداسازی لوله سوختگیری

۵-۵-۵- آشنایی با موارد ایمنی شخصی و لباس

۶-۵-۵- درک اقدامات لازم به هنگام وقوع حالتیهای اضطراری در دریا و بندر

۷-۵-۵- آگاهی از رعایت و اجرای قواعد و قوانین بین المللی در زمینه ایمنی جان اشخاص، ایمنی دریانوردی و جلوگیری از آلودگی دریا و توانایی در حفظ ایمنی .

۸-۵-۵- توانایی اندازه گیری تانکهای سوخت و دیگر تانکها





۹-۵-۵- آشنایی با نحوه تعمیر و نگهداری تجهیزات موتورخانه تحت نظارت مهندس مسئول نگهداری

۱۰-۵-۵- توانمندی ارتباط و استفاده از زبان انگلیسی دریایی

۶-۵- عناوین دروس و ریز مواد درسی و آزمون

عناوین دروس و جدول نمایانگر تعداد سؤالات، مدت، نوع، حدنصاب قبولی و مواد درسی آزمون مهارت دریانوردی برای داوطلبین سمت " ملوان ماهر موتورخانه بر روی کشتیهای با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود.

۱-۶-۵- جدول نمایانگر تعداد سؤالات، مدت، نوع، حد نصاب قبولی و مواد درسی آزمون مهارت سمت ملوان ماهر موتورخانه بر روی کشتی های با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود

ملاحظات	مواد امتحانی (بند دستورالعمل)	حد نصاب قبولی (درصد)	نوع آزمون	مدت (ساعت)	تعداد سؤالات	نام آزمون	ردیف
در زمان آزمون شفاهی می بایست شناسنامه دریانوردی ارائه گردد	4-1-1, 4-1-2, 4-1-3, 4-2-1, 4-2-2, 4-3-1-1, 4-3-1-2, 4-3-1-3, 4-3-1-4, 4-3-1-5, 4-4-1-1, 4-4-1-2, 4-5-1-1, 4-5-1-2, 4-5-1-3, 4-5-2, 5-1-1, 5-1-2, 6-1 4-1-1, 4-1-2, 4-1-3, 4-3-1-1, 4-3-1-2, 4-3-1-3, 4-3-1-4, 4-3-1-5, 4-4-1-1, 4-4-1-2, 4-5-1-2, 4-5-1-3, 4-5-2, 5-1-1, 5-1-2, 6-1-1, 6-1-2, 6-1-3, 6-1-4, 6-1-5, 6-1-6, 3-1, 3-2, 3-2-2, 3-2-3, 3-3	نمره ندارد	شفاهی	حداکثر ۲ ساعت	نامحدود	شفاهی / عملی / شبیه ساز	۱

❖ امتحان دانش مهندس دریایی به مرکز آموزش دریانوردی مورد تایید سازمان تویض اختیار شده است



۲-۶-۵ حداقل مواد درسی دوره آموزش سمت ملوان ماهر موتورخانه بر روی کشتی های با قدرت رانش ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود در بخش انگلیسی این دستورالعمل می باشد.

۷-۵ امکانات مورد نیاز جهت برگزاری دوره

جهت برگزاری دوره آموزشی علاوه بر فضای آموزشی قید شده در " دستورالعمل صدور مجوز و نظارت بر اجرای دوره ها در مراکز آموزشی دریانوردی " مصوب سازمان ، تجهیزات کمک آموزشی مشروحه زیر نیز مورد نیاز می باشد:

۱-۷-۵ سالن / کلاسها می بایست مجهز به سیستم تهویه و نور کافی و وسایل سمعی و بصری و امکانات مورد نیاز برای تدریس باشد (وسایل کمک آموزشی شامل: وایت بورد/ تخته سفید، کامپیوتر و دستگاه ویدئو پروژکتور چند رسانه ای، پرده ویدئو پروژکتور و امکانات مورد نیاز برای تدریس زبان انگلیسی تخصصی و عمومی)

۲-۷-۵ کتابخانه مجهز به کتب تخصصی مورد نیاز تدریس و اطلاعات جامع دیگر در خصوص دوره

۳-۷-۵ فیلم های آموزشی و جزوات درسی و آموزشی مورد نیاز و مرتبط با دوره.

۴-۷-۵ آزمایشگاه و کارگاه مکانیک

Mechanical laboratory (Materials and equipment)

- 1- Work benches fitted with vices, tool storage lockers and cabinets.
- 2- Portable power tools such as drilling machines, small bench or pedestal grinder.
- 3- Measuring equipment: external and internal verniers, inside and outside calipers, standard adjustable inside and outside micrometers, depth and dial gauges.
- 4- Hand tools: chisels, center punches, hacksaws, scrapers, drills, bits, hammers, taps and dies, nuts, spanners and wrenches, files.
- 5- A marking table.
- 6- Scribers, scribing blocks, try-square, trammels, protector, dividers, straight-edge.
- 7- Oxy-acetylene brazing and cutting equipment.
- 8- Electric arc-welding equipment.
- 9- Working benches.
- 10- Soldering equipment.
- 11- Protective clothing, including aprons, gloves, masks, goggles and welding boots.
- 12- Gas bottles storage.
- 13- Welding electrodes.
- 14- Work-securing vice.



۸-۵- شرایط مدرسین و مربیان دوره

مدرسین و مربیان دوره های آموزشی مندرج در این دستورالعمل می بایست علاوه بر گذراندن دوره مدرسی مورد تأیید سازمان دارای حداقل مدارک و تجارب مشروحه زیر باشند:

۸-۵-۱- مدرسین

- ۸-۱-۱-۵- دارای حداقل گواهینامه شایستگی معتبر افسر مهندس سوم در کشتیهای با قدرت موتور ۷۵۰ کیلووات یا بیشتر سفرهای نامحدود و همچنین حداقل ۶ ماه خدمت دریایی در آن سمت و یا ;
- ۸-۱-۲-۵- دارای مدرک تحصیلی لیسانس مرتبط (مهندسی کشتی، مهندسی کشتی سازی یا مهندسی مکانیک سیالات) با حداقل ۱۲ ماه خدمت دریایی (کارورزی) بر روی کشتیهای تجاری (اقیانوس پیما) و همچنین حداقل ۱۲ ماه سابقه تدریس مرتبط در مراکز آموزش دریانوردی باشند.

۸-۵-۲- مربیان

- ۸-۲-۱-۵- دارای حداقل مدرک تحصیلی فوق دیپلم مکانیک دریایی با حداقل ۲ سال خدمت دریایی و یا دارای گواهینامه معتبر ملوان موتور با حداقل ۵ سال خدمت دریایی بر روی کشتیهای تجاری باشند.

۹-۵- ارزیابی و صدور گواهینامه

- ۹-۱-۵- در صورت موفقیت فراگیران در ارزیابی های حین و یا پایان دوره، گواهی طی موفقیت آمیز دوره مربوطه توسط مرکز آموزشی مورد تایید و مجری برگزاری دوره صادر می گردد.
- ۹-۲-۵- سپس فراگیران می توانند درخواست حضور در آزمون مهارت دریانوردی سازمان را بر اساس مفاد بند ۱-۶-۵ این دستورالعمل ارائه نمایند؛ و
- ۹-۳-۵- نهایتاً اداره امتحانات و اسناد دریانوردان سازمان برای آن دسته از شرکت کنندگان که آزمون مربوطه را با موفقیت طی نموده باشند و حائز دیگر شرایط لازم باشند، گواهینامه مرتبط بر اساس دستورالعمل صدور، تمدید و تجدید گواهینامه های دریانوردان صادر می نماید.

۱۰-۵- شرایط تمدید/ تجدید گواهینامه

گواهینامه های شایستگی و مهارت دریانوردی بر اساس مفاد دستورالعمل صدور، تمدید و تجدید گواهینامه های دریانوردان تمدید و یا تجدید می گردد.



۱۱-۵- روش تأیید دوره

تأیید دوره بر اساس مفاد مندرج در دستورالعمل صدور مجوز و نظارت بر اجرای دوره ها در مراکز آموزش دریانوردی صورت می پذیرد

۶- سوابق

کلیه سوابقی که نشان دهنده رعایت موارد مندرج در این دستورالعمل باشد.

۷- مراجع

۷-۱ کنوانسیون اصلاح شده STCW و آیین نامه مربوطه

۷-۲ مدل کورس سازمان بین المللی دریانوردی (IMO)

۷-۳ دستورالعمل صدور ، تمدید و تجدید گواهینامه های دریانوردان

۷-۴ دستورالعمل صدور مجوز و نظارت بر اجرای دوره ها در مراکز آموزشی دریانوردی

۸- ضمیمه



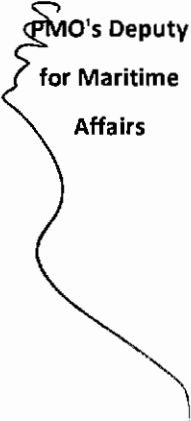
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PMO

***The Code of Practice for Conducting Able Seafarer Engine on
Ships of Propulsion Power $KW \geq 750$ Engaged on Unlimited
Voyages Training Course and Competency Assessment***

P6-W134

Revision No.	Date of revision	Comment on revision	provider	approving amendments authority	endorsing amendments authority
00	01/SEP/2014	STCW Convention, as amended	N. Alipour, Head of Seafarers' Standards' Directorate 	H. Mirzaei, Director General of Seafarers' Affairs 	S.A.Estiri, PMO's Deputy for Maritime Affairs 

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Introduction

Ports and Maritime organization (P.M.O) of the Islamic republic of Iran in performing its duty and in exercising its prerogative resulting from article 192 of the Islamic republic of Iran maritime code, 1964 and paragraph 10 of article 3 of P.M.O manifesto, 1970 enabling it to issue any document, certificate or license for ships, masters, officers and other ship personnel and also in accordance with the provisions of the international convention on standards of training, certification and watch keeping for seafarers (STCW), 1978, as amended adopted by the Islamic consultative assembly in 1996 and taking into account regulations III/5 of the mentioned Convention and section A- III/5 of the STCW Code, develops this "code of practice for conducting Able Seafarer Engine on Ships of Propulsion Power $KW \geq 750$ engaged on unlimited voyages training course and competency assessment" which is applicable after endorsement by the board of executives of Ports & Maritime Organization.

NOTE: The title of Ports and Shipping Organization changed to Ports and Maritime Organization dated 29.04.2008 through parliamentary act and approved by Islamic council assembly.





1-Objective

The objective of this code of practice is to specify the minimum requirements for conducting Able Seafarer Engine on Ships of Propulsion Power $KW \geq 750$ Engaged on Unlimited Voyages Training Course and Competency Assessments.

2-Scope of application

This code of practice is applicable to all approved training centers that conduct Able Seafarer Engine on Ships of Propulsion Power $KW \geq 750$ Engaged on Unlimited Voyages Training Course and Competency Assessments.

3-Definition

For the purpose of this code of Practice, unless expressly provided otherwise:

3-1 Able Seafarer Engine

Means a rating qualified in accordance with the provisions of regulation III/5 of the Convention.

3-2 Approved

Means approved by the Seafarer's Standards Directorate in accordance with the PMO's Codes of practices.

3-3 Central Monitoring Office

Central monitoring office which is responsible for approving and monitoring training courses is the Seafarer's standard directorate of the PMO.

3-4 Certificate

Means Certificate other than Certificate Of proficiency and competency, which issued to fulfill the requirement in Codes of practices for issuing, revalidation and renewing certificates for seafarers, which shows the holder is capable of serving in that rank.

3-5 Code of Practice

Means all national rules, regulations and requirements specified in this document which have been drafted by the PMO's General Directorate of Maritime affairs and endorsed by the PMO's board of executive

3-6 Company

Means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the ship owner and who, on assuming such responsibility, has agreed to take over all the duties and responsibilities imposed on the company by these Codes of practices.





3-7 Convention

Means international convention on standards of training, certification and watch keeping for Seafarers, 1978, as amended.

3-8 Course Completion Certificate or Documentary Evidence

Means a certificate issued through the training center, after successfully completion of training program by the applicants

3-9 Certificate of Proficiency (COP)

Means a certificate, other than a certificate of competency issued to a seafarer, stating that the relevant requirements of training, competencies or seagoing service in the STCW Convention have been met.

3-10 Engine Rating

Means a rating qualified in accordance with the provisions of regulation III/4 of the Convention.

3-11 Function

Means a group of tasks, duties and responsibilities, as specified in the STCW Code, necessary for ship operation, safety of life at sea or protection of the marine environment.

3-12 General Rating

Means a member of ship's crew who is qualified in accordance with the provisions of Codes of practices for issuing, revalidation and renewing certificates for seafarers.

3-13 ISPS Code

Means the International Ship and Port Facility Security (ISPS) Code adopted on 12 December 2002, by resolution 2 of the Conference of Contracting Governments to the International Convention for the Safety of Life at Sea (SOLAS), 1974, as may be amended by the Organization.

3-14 Master

Means the person having command of a ship

3-15 Medical Fitness Certificate

Means a certificate issued by the PMO's recognized medical practitioner to the candidates who found to be medically fit.

3-16 Merchant Ship

Means any ship (other than servicing vessel, mobile offshore platform, fishing and naval ships) used for carriage of cargoes, passenger and/or provisions

3-17 Minimum Safe Manning Certificate

Means a certificate in which the minimum safe manning of a vessel being determined by shipping companies & approved by PMO.





3-18 Month

Means a calendar month or 30 days made up of periods of less than one month.

3-19 Near-Coastal Voyages (NCV)

Means voyages between ports situated in the Persian Gulf and Gulf of Oman (positions from LAT 22° 32' N 059° 48' E to 25° 04' N 061° 22' E) or between Caspian Sea ports.

3-20 On Board Training Record Book

Means on board training record book approved by Port and Maritime Organization in which practical and theoretical training of seafarer shall be fulfilled according to its content.

3-21 Port's Monitoring Office

Means the deputy of general directorate in ports in which the directorate of examinations & seafarers' documents is included and on behalf of seafarers' standards directorate is responsible for approving and monitoring training courses conducted in the province that port is situated

3-22 PMO

Means Ports & Maritime Organization (PMO) of the Islamic Republic of Iran

3-23 Rating

Means a member of the ship's crew other than the master or an officer.

3-24 Regulations

Means regulations contained in the annex to the STCW Convention

3-25 Seagoing service

Means service on board a ship relevant to the issue or revalidation of a certificate or other qualification.

3-26 Seagoing Service / Documentary Evidence

Means approved sea going service required to be presented for participating in a training course, maritime examination and issuance of certificate. These documentary evidence should be inserted in CDC and authenticated by company or ship owner or ship owner's associations and in addition be presentable in a form of computer sheet, official letter or other forms as defined in the annex to this code of practice.

3-27 Seagoing Ship

Means a ship other than those which navigate exclusively in inland waters or in waters within, or closely adjacent to, sheltered waters or areas where port regulations apply.

3-28 STCW Code

Means the seafarers' training, certification and watch keeping (STCW) code as adopted by the 1995 conference resolution 2, as it may be amended by the international maritime organization.





3-29 Support Level

Means the level of responsibility associated with performing assigned tasks, duties or responsibilities on board a seagoing ship under the direction of an individual serving in the operational or management level.

3-30 Training center

Means maritime university/center/ directorate/ department/company and/or any organization conducting maritime training course approved by PMO

3-31 Unlimited Voyages

Means voyages not limited to the near coastal voyages.

4 Responsibilities

4-1 Central monitoring office is responsible for revising this code of practice.

4-2 General Director of Seafarers' Affairs is responsible for approving amendments to this code of practice.

4-3 Deputy of maritime affairs is responsible to endorse amendments to this code of practice on behalf of PMO's board of executive.

4-4 Training centers are to conduct training course in accordance with this Code of practice.

4-5 Central monitoring office is responsible for supervising the implementation of this code of practice in training centers.

5-Procedure:

5-1 course objective

The objective of this training course is to prepare trainees to achieve competencies set out in the column 1 of table A-III/5 of the STCW Code.

5-2 course duration

5-2-1 A minimum of 170 hours theoretical and 80 hours practical for each trainee

(total of 250 hours).

5-2-2 Maximum daily contact hours for each trainee is 8.

5-3 number of trainees

5-3-1 the maximum number of trainees in each course is 20.

5-3-2 the number of trainees may be increased to 30 when the relevant facilities, teaching aids and class-room space are increased as per criteria set out in the code of practice for approving and monitoring training courses and is approved by the relevant monitoring office.





5-4 Course entry requirement

The course trainees should, at least;

5-4-1 be not less than 18 years of age;

5-4-2 hold valid medical fitness certificate, issued in accordance with the provisions of the relevant code of practice;

5-4-3 hold at least secondary school education certificate or other national equivalent certificate approved by Ministry of Education;

5-4-4 Hold Engine Rating certificate of proficiency on ships of Propulsion Power $KW \geq 750$ Engaged on unlimited voyages; and

5-4-5 have at least 18 months seagoing service on merchant ships in the rank of Engine Rating on ships of Propulsion Power $KW \geq 750$ Engaged on unlimited voyages.

5-5 Expected Knowledge, Understanding and Proficiency

5-5-1 Understanding of function of common equipment installed in engine room, and
And their working condition.

5-5-2 Knowledge of taking safe engine room watch with respect to superior orders.

5-5-3 Proficiency in using hand tools and electrical equipments, and knowledge of
main engine and auxiliary engine working condition.

5-5-4 Ability to use bunkering connection system, and knowledge of using other piping systems.

5-5-5 Understanding of using safe working clothes.

5-5-6 Knowledge of action to be taken during emergencies in port and at sea.

5-5-7 Knowledge of compliance with legislative requirements, safety of life at sea, pollution-prevention requirements, contribution to safety/security of personnel apply precautions and contribute to the prevention of pollution of the marine environment;

5-5-8 Ability to measure fuel and other tanks.

5-5-9 Knowledge of taking safe engine room watch with respect to superior orders

5-5-10 Knowledge of the Maritime English in Written and Oral Form in order to understand manufacturer's safety guidelines and shipboard instructions;





5-6 Course syllabi and competency assessment:

5-6-1 Competency assessment details;

No.	Title	Number of Question	Time (hours)	Type	Pass mark	Subjects (5-6-2)	Remarks (if any)
1	Oral	unlimited	Maximum 2 hours	Oral/practical/simulator	To the discretion of assessor	4-1-1, 4-1-2, 4-1-3, 4-2-1, 4-2-2, 4-3-1-1, 4-3-1-2, 4-3-1-3, 4-3-1-4, 4-3-1-5, 4-4-1-1, 4-4-1-2, 4-5-1-1, 4-5-1-2, 4-5-1-3, 4-5-2, 5-1-1, 5-1-2, 6-1, 4-1-1, 4-1-2, 4-1-3, 4-3-1-1, 4-3-1-2, 4-3-1-3, 4-3-1-4, 4-3-1-5, 4-4-1-1, 4-4-1-2, 4-5-1-2, 4-5-1-3, 4-5-2, 5-1-1, 5-1-2, 6-1-1, 6-1-2, 6-1-3, 6-1-4, 6-1-5, 6-1-6, 3-1, 3-2, 3-2-2, 3-2-3, 3-3	At the time of oral examination seaman book must be presented

Notes;

- In Oral/practical/simulator assessment questions from written assessments may also be asked.
- Knowledge of marine engine examination is held in approved and nominated institute center.





5-6-2 Course minimum syllabi (170 hours theoretical and 80 hours practical)

FUNCTION 4 : MARINE ENGINEERING AT THE SUPPORT LEVEL (92 hours Theory)

Competence 4-1: Contribute to a safe engineering watch (6 hrs. T)

4-1-1-Ability to understand orders and to communicate with the officers of the watch in matters relevant to watch keeping duties (2 hrs. T)

Knowledge and Understanding of: Internal communication system; Escape routes from machinery spaces; Engine room alarm systems distinguishing between various alarms, The number, location and types of firefighting equipment and damage control gear in the machinery space; Operating the propulsion equipment in response to needs for changes in direction or speed; Performing routine adjustment, required upkeep of maintenance tasks; Taking the action to contain the effects of damage resulting from equipment malfunction or failure and take immediate remedial actions to ensure the safety of the ship, cargo operation, the port and its environment.

4-1-2-Procedures for the relief, maintenance and handover of a watch (2 hrs. T)

Knowledge and Understanding of: Assisting the engineering watch, jobs which are being carried out; All engine parameters, tank soundings, bilge level leakages of any type, abnormal sound smell, smoke of any type are correctly monitored, recorded and reported to the duty engineer officer; All information regarding the watch to hand over to relieving rating.

4-1-3-Information required to maintain a safe watch (2 hrs. T)

Knowledge and Understanding of: The nature of all work being performed on machinery and systems, the personnel involved and potential hazards; The level and the condition of water or residues in bilges, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for disposal of the contents there of; The condition and level of fuel in the reserve tanks, settling tank, day tank and other fuel storage facilities; Requirements relating to sanitary system disposal; Condition and mode of operation of the various main and auxiliary systems; Operation of steam boilers; Any special modes of operation dictated by equipment failure or adverse ship conditions; The availability and use of fire fighting appliances; The state of completion of engine room log; Dead man alarm; Co-operating with any engineer in charge of maintenance work during all preventive maintenance, damage control or repairs; Isolating and bypassing machinery to be worked on; Recording in the engine room log book; Assisting the manual operation of machinery in the event of automatic equipment failure.

***Competence 4-2: Contribute the monitoring and controlling of an engine- room
watch(54 hrs.T)***

***4-2-1-Basic knowledge of the function and operation of main propulsion and
auxiliary machinery (50 hrs. T)***

Knowledge of: Available main and auxiliary machineries for propulsion, steering the ship and providing services; Their individual function; Correct procedures for the preparation, starting up, normal running and shutting down of marine machineries; Importance of data recorded from





running machineries (Temperature, pressure and speed); Using data to locate fault; Appropriate procedure following discovery of fault; Marine diesel engine types; Large bore diesel engines and their major difference with smaller diesel engines; Low, medium and high speed engines; Their application and how can be used as main propulsion engines; Approximate speed ranges related to low, medium and high speed engines; Ways and methods of scavenging 2- stroke and 4- stroke engines; Reasons for a supercharging system; Principal features of a typical "V" type medium speed diesel engine; Principle components of large bore 2- stroke diesel engines and the material of manufacture (Bed plate, Crank shaft, Frame, Connecting rod, Cross head arrangement, camshaft, chain and gear, piston, Cylinder block, Tie rod, Liner and cylinder head); Principle parts, materials and operation of exhaust valves, cylinder lubricator, piston gland, fuel pumping, fuel valve for diesel engines; Engine speed control mechanism including governor.

4-2-2-Basic understanding of main propulsion and auxiliary machinery control pressures, temperatures and levels (4 hrs. T)

Knowledge and understanding of: Maintaining main propulsion and auxiliary machinery parameters within the range, such as, pressures (Lubricating oil, jacket water, piston cooling), temperatures (Exhaust gas, jacket water, scavenge air space, turbocharger, lubricating oil); Maintaining correct tank levels; Correct method of measuring tank contents; Dangers involved in overflowing of tanks; Self closing sounding pipes; Tank level monitoring both local and remote; Boiler water level importance and gauge glass reading; Informing duty engineer in case of any abnormalities.

Competence 4-3: Contribute to fuelling and oil transfer operations (8 hrs. T)

4-3-1-Knowledge of the function and operation of fuel system and oil transfer operations, including: (8 hrs. T)

4-3-1-1-Preparations for fuelling and transfer operations (4 hrs. T)

Knowledge of: Pumping system; Air vents; Oil spill prevention; Preparation for bunkering; SOPEP and preparation of equipment; Tank capacity; Communication method and signaling; Fuel transfer from double bottom tanks to the settling tank and from settling to service tank via purifier.

4-3-1-2-Procedures for connecting and disconnecting fuelling and transfer hoses (1 hrs. T)

Knowledge of: connecting the bunker hose; Use of gasket; Bolts and nuts; tightening procedure; Preventing oil leak; Static electricity and dangers involved; controlling the opening and closing of valves.

4-3-1-3-Procedures relating to incidents that may arise during fuelling or transferring

Operation (1 hrs. T)

Knowledge of: Dangers involved in bunkering operation; Keeping clear of hose; Dangers of falling overboard; Fire dangers; Keeping air vents clear; Plugging and cementing of scuppers; Tank over flow.





4-3-1-4-Securing from fuelling and transfer operations (1 hrs. T)

Knowledge of: Potential dangers involved in bunkering and fuel transferring operation.

4-3-1-5-Ability to correctly measure and report tank levels (1 hrs. T)

Knowledge and ability of: Taking correct tank soundings; Ullage recording; Regular checking of tank content as the bunkering is in progress; Recording and reporting of tank level.

Competence 4-4: Contribute to bilge and ballast operations (8 hrs. T)

4-4-1-Knowledge of the safe function, operation and maintenance of the bilge and ballast system, including: (8 hrs. T)

4-4-1-1-Reporting incidents associated with transfer operations (7 hrs. T)

Knowledge of: Engine room and hold bilge piping system, valve types, strainers and filters; Bilge and ballast pumping systems; Pumps interconnections; Risk of bilge discharge during de-ballasting; Pump washing through after bilge transfer; Emergency bilge suction valve, It's location and function and operation; Remote and local operation of valves, bilge holding tank, maintenance of bilge and ballast pumping system; Air lock and it's cause; Pump priming.

4-4-1-2-Ability to correctly measure and report tank levels (1 hrs. T)

Knowledge of: Remote and local tank level monitoring; Sounding pipes and caps.

Competence 4-5: Contribute to the operation of equipment and machinery (16 hrs. T)

4-5-1-Safe operation of equipment, including: (16 hrs. T)

4-5-1-1-Valves and pumps (12 hrs. T)

Knowledge of: Operation of all valve types such as Globe, gate, butterfly; How these valves operate and maintained; Safe operation of different types of pumps, gland and mechanical seal maintenance.

4-5-1-2-Hoists and lifting equipment (1 hrs. T)

Knowledge of: Correct operation and maintenance of lifting tackles and equipments; Handling of equipments; Wire inspection, removal and exchange; Limit switches; Safe working load; Correct use of eyebolts.

4-5-1-3-Hatches, watertight doors, ports and related equipment (2 hrs. T)

Knowledge of: Safe operation of hatch covers, water tight doors, skylight, vents, manhole doors and their maintenance; Opening and closing in emergencies.

4-5-2-Ability to use and understand basic crane, winch and hoist signals (1 hrs. T)

Knowledge of: Correct signaling techniques for crane and winch and hoisting equipment.





**FUNCTION 5 : ELECTRICAL, ELECTRONIC AND CONTROL ENGINEERING
AT THE SUPPORT LEVEL (32 hours Theory)**

Competence 5-1: Safe use of electrical equipment (32 hrs. T)

5-1-1-Safe use and operation of electrical equipment, including: (26 hrs. T)

5-1-1-1-Safety precautions before commencing work or repair (8 hrs. T)

Knowledge of: Basic electrical safety precautions; Simple electrical system, typical values of supply voltage, power and location of electrical items in the system; Safe manner of normal operation and maintenance requirements team work and fault finding activities; Normal and abnormal alarms or indications on switch boards for informing responsible watch keepers; Considering following cases before any electrical attempt: Informing officer of the watch before shutting down any equipment; Ensuring all safe guards, covers, panels doors, bolts and fixings are secure and tight; How to safely confirm that any electrical circuit is dead or live; Preventive measures for following touching any live conductor or rotating part under any circumstances or leaving them exposed; over loading; neglecting equipment; Using personal protective equipment such as overalls, safety shoes, goggles, insulation gloves, insulation mats ,ear protections, and other protection related to working area and conditions; Safety procedures when entering battery and battery charger rooms; Safety when operating overhead and provision cranes.

5-1-1-2-Isolation procedures (6 hrs. T)

Knowledge of: Safe Isolation procedure for equipment and associated systems; Procedures for attending to work on any plant or equipment including: Dismantling and re-assembling, location of circuit breakers and fuses, points at which the system is dead or isolated from all live conductors; Efficient earth connection; Caution notices or tags posted at relevant points; Permit to work , its issuing, cancellation and importance).

5-1-1-3-Emergency procedures (4 hrs. T)

Knowledge of: Ships emergency plans and procedures; Electrical fire and immediate actions to be taken; Procedures following a total electrical power failure; Fighting electrical fire and reducing electrical shock hazards by using relevant extinguishing media.

5-1-1-4-Different voltages on board (8 hrs. T)

Knowledge of: Voltage rating for different equipment including low voltage, high voltage, control voltage and related devices on board: H.V ships of 3.3, 6.6, or 11Kv with Megawatt generators of Megawatt power ratings; Medium voltage ships of 380-440v, 50-60Hz frequency, with K.W power ratings; Low power ancillary services of 110 - 220v single phase obtained by normal step down 3-Ph transformers; Minor voltages such as 24-55v A.C for control purposes and 12-24v D.C batteries as emergency sources.





5-1-2-Knowledge of the causes of electric shock and precautions to be observed to prevent shock (6 hrs. T)

Knowledge of: Electric shock and its causes & consequences; Conditions on board ships that often create greater than normal risks of electric shock; Factors that affect the electric shock severity such as current value, duration and type; Current value in relation to electric shocks; Various electric shock sources including live conductors, open front and back power panels, micro wave and capacitors, static electricity and portable equipments.

**FUNCTION 6 : MAINTENANCE AND REPAIR AT THE SUPPORT LEVEL
(17 hours Theory and 72 hours Practical)**

Competence 6-1: Contribute to shipboard maintenance and repair (17 hrs. T , 72 hrs. P)

6-1-1-Ability to use painting, lubrication and cleaning materials and equipment (2 hrs. T)

Knowledge of: Preparation for painting; Rust removal; Surface preparation; Application of different types of paint including primer coating; Dangers involved when handling flammable materials such as paints and thinner; Storage of paints; avoiding sparks and correct ventilation; Different types of grease and lubricating oils, Grease nipples and guns; Avoiding over lubrication; Maintaining lubricant level; Cleaning agents and materials; Potential dangers involved with cleaning agents and relevant health care; Ventilation; Correct handling and diluting techniques.

6-1-2-Ability to understand and execute routine maintenance and repair procedures (2 hrs. T)

Knowledge of: Routine maintenance of various machinery guided by duty engineer and referring to machinery maintenance manual; Over-hauling techniques; Parts exchange; Repair of damaged parts, including welding and heat treatment.

6-1-3-Knowledge of surface preparation techniques (1 hrs. T)

Knowledge of: Surface preparation of parts and sections; Rust removal and de-scaling; Surface cleaning; Application of coatings.

6-1-4-Knowledge of safe disposal of waste materials (1 hr. T)

Knowledge of: Regulations concerning prevention of pollution by wastes and garbage; Safe disposal of wastes; Usage of incinerator.

6-1-5-Understanding manufacturer's safety guidelines and shipboard instructions (1 hrs. T)

Knowledge of: reference to manufacturer's maintenance manual; shipboard instruction and company instruction manuals.

6-1-6-Knowledge of the application, maintenance and use of hand and power tools and measuring instruments and machine tools (4 hrs. T , 72 hrs. P)





6-1-6-i-Hand tools (2 hrs. T , 8 hrs. P)

Knowledge of: Selecting the correct hand Tools; Types of hacksaw, hammer, taps, die, scrapers, chisels for different applications, usage and associated safety measures for it.

Proficiency in: Selection of files, hacksaw, hammer, taps, die, scrapers, chisels, and powered hand tools; Advanced workshop practice.

6-1-6-ii-Power tools (64 hrs. P)

Knowledge of: Types and function of Drilling Machine and milling machine; Component parts and drive system of a drilling machine; Operations which can be carried out by different types of drilling machine; Features of twist drill; Trepanning tools and reamers; Function of a shaping machine; Basic cutting action of a shaping machine; Component parts of a shaping machine; Selection of appropriate cutting tools for various cutting operations by hand and machine tools; Profile of a cutting edge; Essential requirements when setting-up a tool dimensional tolerances; Use of straight knife-edge and oblique cutting tools; Difference between grinding and sharpening tools; Function and types of cutting fluid.

Function, main component and drive system of a center lathe; Essential movement of a center lathe for various tasks; Purpose and uses of 3 and 4 jaws chucks, carriers, centers and face plate; Finding cutting speed for different tasks; Using center lathe for thread cutting and taper turning; Using center lathe to produce a mild steel bar with good surface finish, cutting threads, taper turning; Use of drills, boring tools on a lathe machine to produce holes to a given specifications; Using a shaping machine to produce simple forms to a given specification; Identifying usage and maintaining the appropriate cutting tools for various cutting operations with power tools; Using published tables for obtaining the correct cutting speeds; Components of basic milling machine and their functions; Caring of milling machine arbor; Types of milling cutter and their applications; Purpose of simple diving head; Dangers of excessive overhang of a cutting tool.

Proficiency in: Inserting and removing drills with parallel and tapered shanks; Sharpening correctly and safety twist drills; Safe clamping and work holding; Using drilling machines to produce through and blind holes; Use of drill selection charts for threads and holes.

Correct mounting and securing of cutting tools and arbor; Estimating speeds for commonly used materials; Usage of milling machine to produce simple forms to a given specification; Measurement; Safety and care when using a drilling, milling machine, shaping machine and center lathe; Cares necessary when using automatic feed; Caring when drilling soft materials; Caring when sharpening twist drills.

6-1-6-iii-Use of various types of sealants and packings (2 hrs. T)

Knowledge of: Sealants, packings and joints; material and use of their instruction manual for compatibility with other materials; Safety consideration with the use of hazardous materials.

Proficiency in: Preparing suitable joints for different media such as sea water, fresh water, oils, and gases.

6-1-7-Knowledge of metalwork (6 hrs. T)

6-1-7-1-Basic metallurgy, metal and processes (6 hrs. T)

Knowledge of: Basic heat treatment processes such as tempering, annealing, normalizing and hardening and their objectives; Heat treatment processes for carbon steels and properties obtained in





each case; Basic principle of modern processes for production of steel from pig iron.

Proficiency in: Identifying samples of various metals; Carrying out four basic heat treatments; Testing a hardened and tempered cutting edge.

**FUNCTION 3 : CONTROLLING THE OPERATION OF THE SHIP AND CARE FOR
PERSONS ON BOARD AT THE SUPPORT LEVEL
(29 hours Theory and 8 hours Practical)**

Competence 3-1: Contribute to the handling of stores (2 hrs. T)

3-1-1-Knowledge of procedures for safe handling, stowage and securing of stores (2 hrs. T)

Knowledge of: Safe handling and correct stowage, securing of stores, leading to extended life of spare parts and store; Avoiding wastages and preserving quality stowage space; Inventory and accessibility of stores.

Competence 3-2: Apply precautions and contribute to the prevention of pollution of the marine environment (20 hrs. T)

3-2-1-Knowledge of the precautions to be taken to prevent pollution of the marine environment (2 hrs. T)

Knowledge of: International convention for the prevention of pollution from ships, 1973, and the protocol of 1978 relating thereto (MARPOL 73/78); Precautions to be taken to prevent pollution of the marine environment; Procedures for monitoring shipboard operations and ensuring compliance with applicable rules and requirements.

3-2-1-i-Annex I (Regulation for the prevention of pollution by oil) (4 hrs. T)

Knowledge of: International Oil Pollution Prevention (IOPP) Certificate; lists the conditions under which oily mixtures may be discharged into the Sea from an oil tanker; Conditions under which oily mixtures from machinery-space bilges may be discharged into the sea; Exempt discharge of clean or segregated ballast and oily mixtures from machinery spaces where in the oil content without dilution does not exceed 15 parts per million; Residues which cannot be discharged into the sea in compliance with the regulations and must be retained on board or discharged to reception facilities; Special areas for the purposes of Annex I as the Antarctic, the Baltic Sea, Mediterranean sea, Black Sea, The Persian Gulf, Gulf of Aden, Red Sea and north-west European waters; The fact that any discharge into the sea of oil or oily mixtures from an oil tanker or other ships of 400 tons gross tonnage and above is prohibited while in a special area; Conditions under which a ship, other than an oil tanker, may discharge oily mixtures in a special area; Conditions in which processed bilge water from machinery spaces may be discharged in a special area; Ballast water should not normally be carried in cargo tanks of tankers provided with segregated ballast tanks; Exceptions in which ballast may be carried in cargo tanks; Every oil tanker operating with crude oil washing system should be provided with an Operations and Equipment Manual; In new ships of 4, 000 tons gross tonnage and above and in new oil tankers of 150 tons gross tonnage and above, no ballast water should normally be carried in any oil fuel tank; Requirements for the provision of Oil Record Books Entries required for machinery space operations in part A of the Oil Record Book; Entries required in respect of cargo or ballast operations in oil tankers; Entries required for accidental or





other exceptional discharge of oil; Oil Record Book should be kept on board readily available for inspection and must be preserved for a period of three years after the last entry has been made.

3-2-1-ii-Annex II (regulation for prevention of pollution by noxious liquid substances in bulk) (2 hrs. T)

Knowledge of: Requirements of Annex II as applicable to all ships carrying noxious liquid substances in bulk; Noxious liquid chemicals divided into four categories, X, Y, Z and OS; Conditions for discharge of any effluent containing substances falling under this annex; Stringent requirements that apply in special areas, which for the purposes of Annex II are the Baltic Sea and the Black Sea; Ship which is certified for the carriage of noxious liquid substances in bulk should be provided with a Procedures and Arrangements Manual; Surveys required for ships carrying noxious liquid substances in bulk; Certificate is issued on satisfactory completion of the survey.

3-2-1-iii-Annex III (Regulation for the prevention of pollution by harmful substances carried by sea in packaged form) (2 hrs. T)

Knowledge of: Purpose of this annex, empty receptacles, freight containers and portable road and rail tank wagons which have been used previously for the carriage of harmful substances are treated as harmful substances themselves unless precautions have been taken to ensure that they contain no residue that is hazardous to the marine environment; Packaging, containers and tanks should be adequate to minimize hazard to the marine environment; Requirements for marking and labeling packages, freight containers, tanks and wagons; Documentation relating to the carriage of harmful substances by sea; States that certain harmful substances may be prohibited for carriage or limited as to the quantity which may be carried aboard any one ship; Jettisoning of harmful substances is prohibited except for the purpose of securing the safety of the ship or saving life at sea.

3-2-1-iv-Annex IV (Regulation for the prevention of pollution by sewage) (2 hrs. T)

Knowledge of: Provisions regarding the discharge of sewage into the sea.

3-2-1-v-Annex V (Regulation for the prevention of pollution by garbage) (2 hrs. T)

Knowledge of: Purpose of Annex V: Garbage; Nearest land; Special area; States that the provisions of Annex V that apply to all ships; The disposal into the sea of all plastics is prohibited; Regulations concerning the disposal of other garbage.

***3-2-1-vi-Annex VI (Regulation for the prevention by emission from ships; Air pollution)
(2 hrs. T)***

Knowledge of: Purposes of Annex VI: Continuous feeding; Emission; New installations; NOX technical code; Ozone depleting substances; Sludge oil; Shipboard incineration; Shipboard incinerator; SOX emission control area; Types of inspection required under Annex VI; Provision for the issuance of International Air Pollution Prevention certificate; Duration of validity of the certificate; Regulation regarding NOX under regulation 13 of Annex VI; Requirement for SOX emission control area; Requirement for fuel oil quality in regulation 18 of Annex VI.





3-2-2-Knowledge of use and operation of anti-pollution equipment (2 hrs. T)

Knowledge of: Major points in a typical shipboard oil pollution emergency plan (SOPEP), the actions to be taken by persons on board in the event of any pollution.

3-2-3-Knowledge of approved methods for disposal of marine pollutants (2 hrs. T)

Knowledge of: Actions to ensure that a positive environmental reputation is maintained; Offence under international law for pollution of the sea and habitats; Prohibition of dumping of oil or oil water mixture to sea; Legal maximum oil content of water to be discharged overboard; Requirement of pumping bilges through an approved oily water separator; Recording of information which must be entered in the oil record book when pumping bilges; Precautions to be taken to avoid spilling when bunkering purpose of an incinerator for disposal of sludge and refuse; General requirement for discharge of effluent from a sewage plant; Incinerator; Retention; Blending; Discharge to shore facilities and record keeping.

Competence 3-3: Apply occupational health and safety procedures (7 hrs. T , 8 hrs. P)

3-3-1-Working knowledge of safe working practices and personal shipboard

safety, including: (7 hrs. T , 8 hrs. P)

3-3-1-1-Electrical safety

Refer to 5-3-1-3.

21-3-1-2-Lockout/tag-out

Refer to 5-3-1-3.

3-3-1-3-Mechanical safety (2 hrs. T)

Knowledge of: All measures and precautions necessary for the safety of those concerned have been taken; No alarm system should be isolated without permission of duty engineer; Warning notices should be posted at or near controls giving warning that machinery concerned is not to be used; Possibility of starting from remote station; All circuit breakers are to be switched off and a sign posted when work on equipment is going on; Use of approved safety lamp for illuminating spaces where oil or oil vapour is present; Vapour should be dispersed by ventilation before work is done; Usage of correct tools and spanners; Correct usage of torque spanner.

3-3-1-4-Permit to work systems (2 hrs. T)

Knowledge of: Safe entering into a dangerous space should be planned in advance with a permit to work and on expiry of the permit to work every one should leave the space and the entrance to the space should be closed or otherwise secured against entry or alternatively where the space is no longer a dangerous space to be declared safe for normal entry.





3-3-1-5-Working aloft (4 hrs. P)

Knowledge of: Precautions to be taken to ensure personal safety when work has to be done aloft or when working outboard; Correct use of safety harness, cradles , stages, bosun's chair, ropes, portable ladder.

3-3-1-6-Working in enclosed spaces (4 hrs. P)

Knowledge of: Precautions on entering dangerous spaces; Duties and responsibilities of a competent person and responsible officer; Identifying potential hazards such as oxygen deficiency, toxicity of oil cargoes, flammability and other hazards, preparing and securing the space for entry, testing the atmosphere of the space oxygen deficiency, for flammable gases or vapours, toxic gases and the need for continuous monitoring and communication.

3-3-1-7-Lifting techniques and methods of preventing back injury (1 hrs. T)

Knowledge of: Precautions to be taken when lifting heavy parts, in order to avoid damage to body, knee and back; Knees bent and back straight to ensure that the legs do the work while keeping chin tucked in; The procedure for putting a load down is the reverse of that for lifting and that the legs should do the work of lowering.

3-3-1-8-Chemical and biohazard safety (1 hrs. T)

Knowledge of: Chemical nature and the hazards it may present to human body, machinery and equipment as well as the environment; Proper handling and storing of chemicals; Technical sheet and reference to it for carriage, stowage, displacement and usage of chemicals.

3-3-1-9-Personal safety equipment (1 hrs. T)

Knowledge of: Working clothes, goggles, shields, gloves, safety helmet, safety shoes, masks and other personal safety equipments to be used as appropriate to the nature of job; Officer in charge or safety committee to be informed in the event of any difficulties.





5-7 facilities and equipment required for conducting the course

Apart from those facilities, equipments and or requirements mentioned in Code of practice for approval and monitoring of maritime training courses followings have to be provided:

5-7-1 Classroom with air conditioning facilities, sufficient lighting and other facilities, suitable for delivering theoretical subjects (such as: white board, computer, multimedia projector and its curtain and other relevant facilities for teaching English)

5-7-2 library with related technical books and references

5-7-3 relevant educational and training films

5-7-4- Mechanical laboratory (Materials and equipment)

1- Work benches fitted with vices, tool storage lockers and cabinets.

2- Portable power tools such as drilling machines, small bench or pedestal grinder.

3- Measuring equipment: external and internal verniers, inside and outside calipers, standard adjustable inside and outside micrometers, depth and dial gauges.

4- Hand tools: chisels, center punches, hacksaws, scrapers, drills, bits, hammers, taps and dies, nuts, spanners and wrenches, files.

5- A marking table.

6- Scribes, scribing blocks, try-square, trammels, protector, dividers, straight-edge.

7- Oxy-acetylene brazing and cutting equipment.

8- Electric arc-welding equipment.

9- Working benches.

10- Soldering equipment.

11- Protective clothing, including aprons, gloves, masks, goggles and welding boots.

12- Gas bottles storage.

13- Welding electrodes.

14- Work-securing vice.





5-8 Lecturers and instructors minimum qualifications

5-8-1 Lecturers and instructors shall have completed a course in instructional techniques (TFT) in one of the training centers approved by the PMO, and:

5-8-1-1 for lecturing in theoretical subjects should;

5-8-1-1-1 Possess valid third engineer certificate of competency for ships of propulsion power $KW \geq 750$ engaged on unlimited voyages as well as having 6 months of seagoing service in that rank and also have 12 month of teaching experience ; or

5-8-1-1-2 Possess B.Sc degree in mechanical science as well as having 12 months of seagoing service on merchant ships and minimum of 12 months of teaching experience in maritime institute.

5-8-1-2 for delivering practical training should;

5-8-1-2-1 posses minimum mechanical higher diploma as well as having two years of seagoing service, or possess valid engine rating certificate of proficiency and 5 years of experience on that rank on merchant ships.

5-9 Assessment and Certification

5-9-1 upon successful completion of the examination which is carried out during and at the end of the course, the trainee will be awarded relevant course completion certificate issued by the approved training center;

5-9-2 then after trainee applies for the PMO competency assessment specified in above paragraph 5-6-1; and

5-9-3 finally, Seafarers' Examination and Documents Directorate of the PMO will issue a CoP for those candidates who have passed above mentioned PMO competency assessment and fulfill other relevant certification requirements set out in the "Codes of practices for issuing, revalidation and renewing certificates for seafarers".

5-10 revalidation/renewal of certificates

5-10-1 CoPs and CoCs and certificates will be revalidated and renewed in accordance with provisions of the Codes of practices for issuing, revalidation and renewing certificates for seafarers.

5-11 course approval

5-11-1 It will be carried out as per code of practice for approval and monitoring of maritime training courses.



6-Records

6-1 All records which present the implementation of the content of this code of practice.

7- References

7-1 STCW Convention and STCW Code;

7-2 IMO Model course;

7-3 Codes of practices for issuing, revalidation and renewing certificates for seafarers; and

7-4 Code of practice for approval and monitoring of maritime training courses.

8- Appendixes

Nil.