

トルコ共和国
海事教育改善・振興計画
事前調査団報告書

平成 10 年 5 月

国際協力事業団
社会開発協力部

序 文

トルコ共和国（以下、トルコと略す）は国際的な海上交通の要衝に位置し、海運が国の重要な産業であるところから、海運振興と船舶安全航行を実現する海事教育の充実を緊急課題としている。

このため同国政府は、船員教育を実施しているイスタンブール工科大学海事学部及び同学部に併設の海事安全訓練センターの充実を図りたいとして、我が国にプロジェクト方式技術協力を要請してきた。

これを受けて国際協力事業団は、要請の背景・内容、プロジェクトの妥当性等を確認して協力の可能性を調査するため、平成10年4月10～24日まで、国際協力事業団社会開発協力部社会開発協力第二課・高井正夫課長を団長とする事前調査団を現地に派遣した。同調査団は各界にわたるプロジェクト関係者と協議を重ねるとともに、PCMワークショップを開催してトルコの実務者が抱える問題点を明らかにしたほか、プロジェクト形成に必要な資料多数の収集に努めた。

本報告書は、同調査団の調査・協議結果を取りまとめたもので、今後プロジェクトの展開にあたって、広く活用されることを願うものである。

ここに、本調査にご協力いただいた外務省、運輸省、在トルコ日本大使館など、内外関係各機関の方々に深く謝意を表するとともに、今後も一層のご支援を賜るよう、お願い申し上げます次第である。

平成10年5月

国際協力事業団

理事 佐藤 清

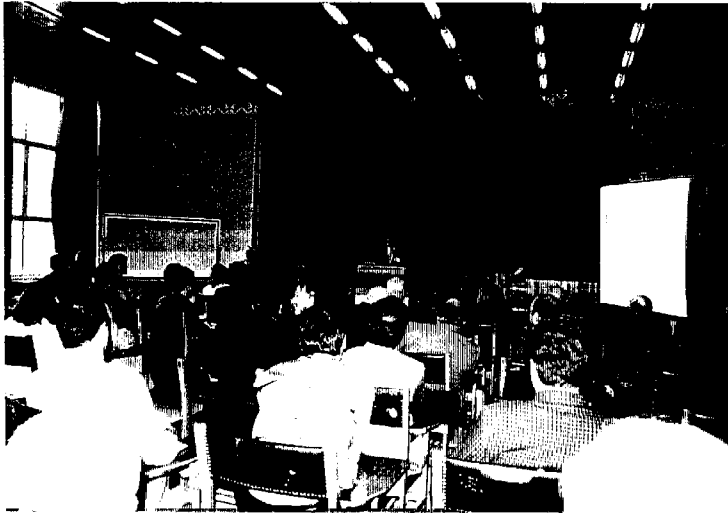


写真1 日本側方針説明の様子



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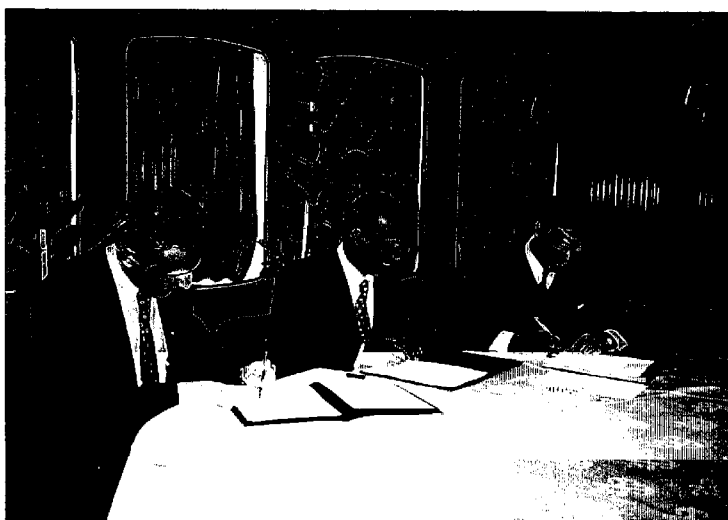


写真3 ミニッツ署名

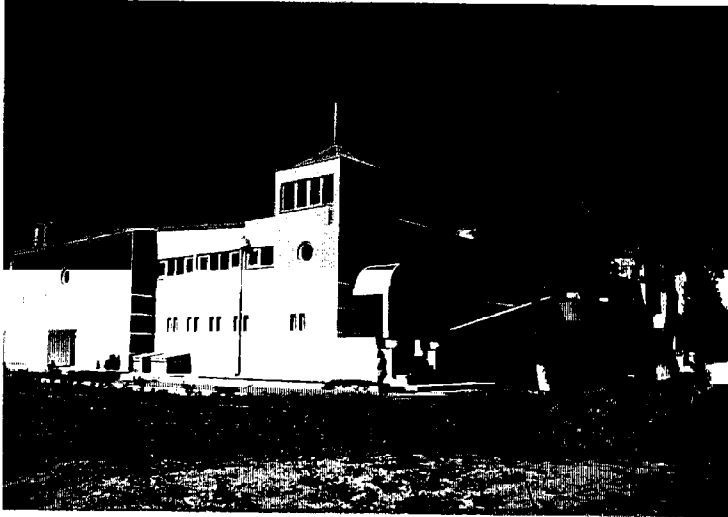


写真4 室内プール（外観）

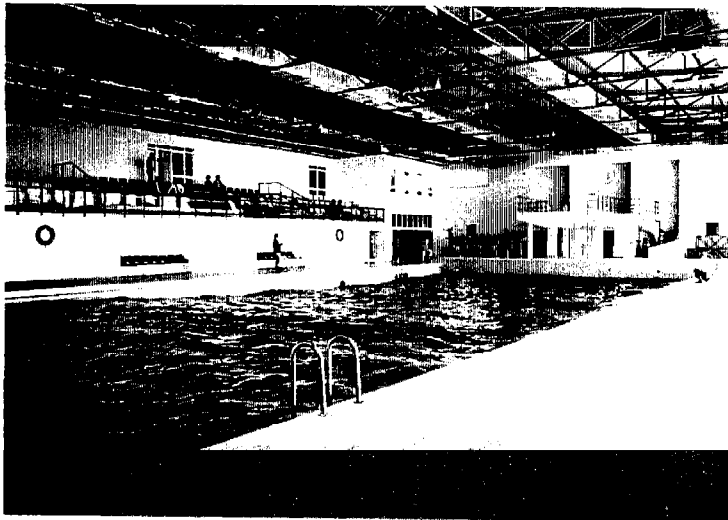


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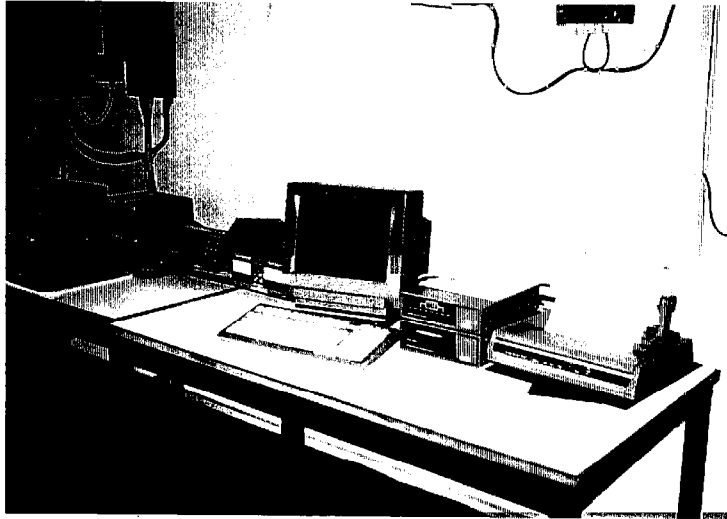


写真7 航海計器

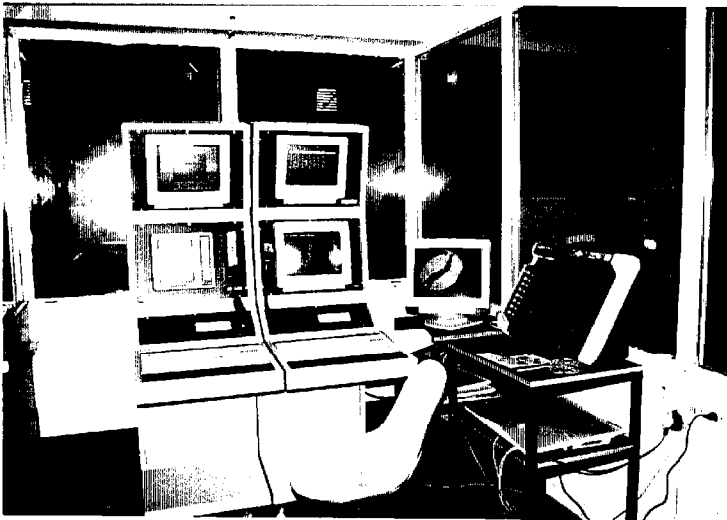


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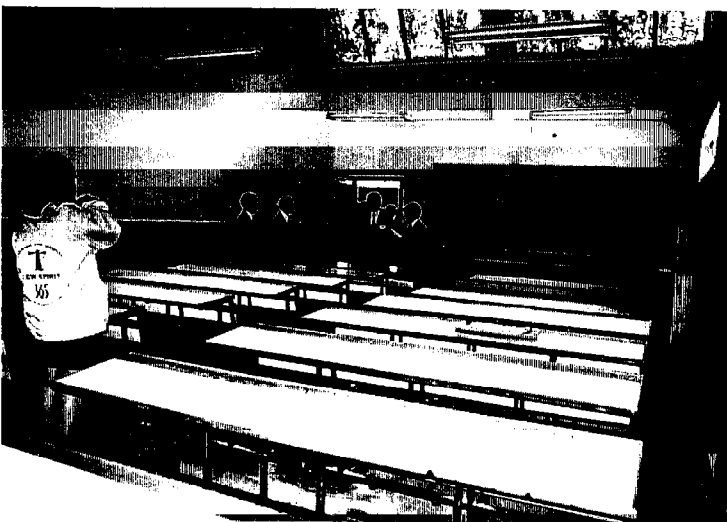


写真9 講義室

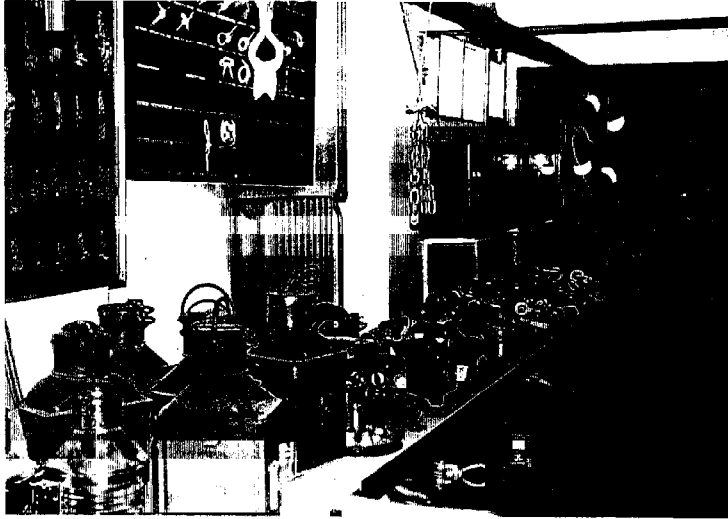


写真10 航海科用器具



写真11 工作室

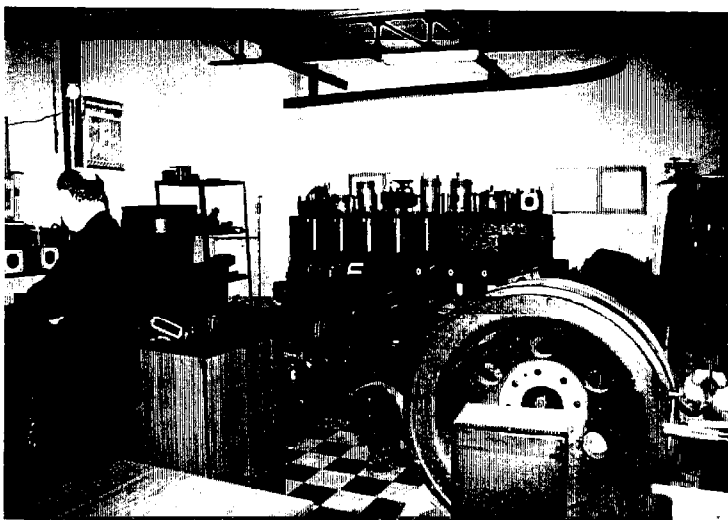


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1 . 事前調査団の派遣

1 - 1 調査団派遣の経緯と目的

トルコは、地中海、マルマラ海及び黒海に面し、かつ黒海と地中海をつなぐボスポラス海峡を有しており、海運は同国の重要な産業になっている。また、中央アジア諸国からの石油輸出をパイプライン経由後、黒海から海路で輸送する計画等があり、今後、同海域の海上交通は激増すると見込まれている。このため船舶の安全航行の確保の重要性は更に増していくと予想される。船舶事故の多くは人的原因によるものであり、これらの事故は悪化の一途をたどる海洋環境汚染の大きな原因の1つにもなっている。

現在、トルコ人船員数は約7万名（オフィサー1万2,500名、部員5万7,500名）であるが、その82%を占める部員のほとんどが十分な海事教育を受けておらず、同国にとって海運振興と船舶安全航行を実現する海事教育の充実は緊急の課題となっている。

このような背景の下、トルコは船員教育を実施しているイスタンブール工科大学海事学部（ITUMF）・海事安全訓練センター（MSTC）に対するプロジェクト方式技術協力を我が国に要請してきた。

これを受けてJICAは、本事前調査団を派遣することとしたが、トルコ側の要請書のみではトルコ海運の現状、プロジェクトと国家開発計画との関連、実施体制、プロジェクトの目標・活動内容等の情報が不明であったため、事前に質問書を作成し、JICA事務所を通じて回答を求めていた。しかしながら、それに対してはカントリーレポートの送付を受けたのみで、明確な情報は得られなかった。かつ、調査に先立ちITUMFに派遣されていた個別専門家の帰国報告を受けたところ、本プロジェクトはプロジェクト方式技術協力実施の前提ともなるべき「専門家活動及び機材設置場所の確保」「カウンターパート（C/P）の配置」「ローカルコストの確保」等が整っているとはいいがたい状況とのことであった。したがって、本調査団は内容的には基礎調査団レベルの情報収集を行うとともに、可能な限り事前調査レベルの調査を行うこととし、トルコ海運状況の調査を行うとともに、トルコ側とプロジェクト方式技術協力の内容について協議を行い、プロジェクト方式技術協力実施可能性については改めて調査結果を受けて検討することとした。

1 - 2 調査団の構成

団長・総括	高井 正夫	JICA社会開発協力部社会開発協力第二課長
船員教育（機関）	尾関 紀彦	運輸省海技大学校機関課教授
船員教育（航海）	渡邊 兼人	運輸省航海訓練所研究調査部研究第一課助教授
海運・船員行政	古田 真敏	運輸省運輸政策局国際業務第二課

参加型計画 井田 光泰 I C ネット
 協力企画 中島 啓祐 J I C A 社会開発協力部社会開発協力第二課職員

1 - 3 調査日程

	月日		行程	内容
1	4/10	金	11:25 成田発 (NH205) 16:40 パリ着	移動
2	11	土	10:40 パリ発 (OS414) 12:50 ウィーン着 13:55 ウィーン発 (TK1890) 17:35 アンカラ着	"
3	12	日	アンカラ	J I C A 事務所との打合せ 団内打合せ
4	13	月	"	関係機関表敬 (海事庁、国家企画 庁、UNDPトルコ事務所) J I C A 事務所との打合せ
5	14	火	10:30 アンカラ発 (TK119) 11:30 イスタンブール着 イスタンブール	移動 日程打合せ、プロジェクト・サイ ト視察
6	15	水	イスタンブール	ワークショップ
7	16	木	"	"
8	17	金	"	"
9	18	土	"	商船会社等関係機関訪問
10	19	日	"	政府海事機関、商船会社等訪問 ボスポラス海峡、海峡管制セン ター訪問
11	20	月	"	分野別協議、ミニッツ協議
12	21	火	"	ミニッツ協議・署名・交換
13	22	水	10:00 イスタンブール発 (TK116) 11:00 アンカラ着	移動 日本大使館報告、J I C A 事務所 報告
14	23	木	12:00 アンカラ発 (TK121) 13:00 イスタンブール着 15:20 イスタンブール発 (AF1591) 18:00 パリ着 20:00 パリ発 (NH206)	移動
15	24	金	14:25 成田着	"

1 - 4 主要面談者

(1) トルコ側

1) Guven ERKAYA

首相補佐官、国際海事機関 (I M O) 代表部ト
ルコ大使

- 2) 国家企画庁
Haik SUREL 日本担当課長
- 3) 海事庁
Capt.Mehmet HATIP 海運局長
Ismail ASASAGLU Head of Ship Survey Council, Directory of District Istanbul
Mr.Nuzhet BILGIN Ship Surveyor, Directory of District Istanbul
- 4) イスタンブール工科大学海事学部
Dr.Osman Kamil SAG 学部長
Dr.Sureyya ONEY 副学部長
Dr.Ahmet BAYULKEN 副学部長
Dr.Sezer ILGIN 海事法・貿易・経済科主任
Dr.Demir SINDEL 航海科準教授
Capt.Teoman AKIN 操船科主任
Capt.Nusret BELIRDI ARPA/Radar Lab主任
Capt.Ozkan POYRAZ GMDSS Lab主任
Chief Engineer Cengiz DENIZ 機関科研究助手
Capt.B Sitki USTAUGLU 航海科研究助手
山本 恒 客員教授
- 5) 海運会社
Nevzat BILICAN Turkish Cargo Lines社長
Hucum TULGAR General Manager, Coastal Safety and Salvage Administrations

(2) 日本側

- 1) 在トルコ日本大使館
細井 俊宏 一等書記官
河南 正幸 二等書記官
- 2) JICAトルコ事務所
米林 達雄 所長
大竹 茂 所員
Ms.Akgun OZCAN Japan International Cooperation Agency Turkey Office

2 . 要約

本事前調査団は、トルコ海運状況の調査を行うとともに、トルコ側とプロジェクト方式技術協力の内容を協議し、プロジェクト実施の可能性について検討することを目的として1998年4月11～23日までの期間トルコを訪問した。

調査団は、トルコ側管轄官庁、実施機関及び海運会社等を訪問し、トルコ海運状況についての多くの資料を入手するとともに、同国における本セクターへのプロジェクト方式技術協力のニーズ並びにトルコ側の意欲の高さを確認した。また、実施機関となるITUMFについてはプロジェクト方式技術協力を受け入れる体制も十分に整っていることから、今後協力内容の詳細検討を行い、早期実施に向け双方が努力する方向で合意し、4月21日にミニッツ（付属資料1）の署名を取り交わした。

（1）管轄官庁との協議

1）海事庁（UMA）（面談者：HATIP海運局長）

UMAは海運部門の独立機関でトルコにおける海運部門の重要性にかんがみ、近く海運省として首相府から離れ昇格する計画もあり、陸運・港湾を管轄する運輸省と並び注目される機関である。HATIP海運局長は「ITUMFはUMAの委託等により一般船員の安全訓練を実施しているのみでなく、船員資格の試験・認定を行う国の唯一の機関であり、日本政府が本協力を実現することは喜ばしい」と述べた。UMAはプロジェクト方式技術協力実施上の上級官庁ともいえる立場にあることから、今後の支援を求めるとともに今回ITUMFと交わされるミニッツについてのウイットネスサインを要請した。同局長はこれを受けて、4月21日にイスタンブールで行われるミニッツ署名に参加することになった。

2）国家企画庁（SPO）（面談者：SUREL日本担当課長）

調査団から本プロジェクトの政策的位置づけの確認を求めたところ、海運振興は当国の重要開発目標であることから、海事関係訓練はトッププライオリティーであるとの回答があった。ただし大学の上級組織は行政上は大学審議会（Higher Education Council）であるが、大学は独立性が強く、過去においてITUMFでの各種協力事業は大学とSPOとの間で協議・実施されてきたとのことであった。調査団は今回、時間的に大学審議会関係者と面会することが困難なので、ITUMFからミニッツを審議会に説明するとともに、JICA事務所よりも同審議会関係者にしかるべく説明するよう依頼することとした。

3) その他

今回の協議の直接の関係者ではないが、ITUMFのSAG学部長のアレンジでERKAYA首相補佐官兼IMO代表部トルコ大使（元海軍総司令官で海事関係では閣僚以上の権限を有する）と協議した。代表部事務所はイスタンブールにあり、外務省の分室としても機能している。ERKAYA大使は、ボスポラス海峡をめぐる政策的な「特別プロジェクト」を担当している立場から、本協力を通じて日本の高度な海峡航行システムをぜひ参考にしたいと首相府としての期待を表明した。

(2) ITUMFとの協議

当プロジェクト要請については、技術協力要請内容が不明確であるのに、機材要請が詳細かつ高額であり、加えて個別専門家の報告もあったことから、本邦の検討会ではプロジェクト方式技術協力実施に疑問がもたれていた。しかしながら今回の調査では、SAG学部長を中心に主要教官全員が1週間の協議を常にサポートするなど、先方の熱意は十分なものがあり、かつ実施体制・ニーズの高さも確認されたことから、今後協力内容の詳細検討を行い、早期実施に向けて双方が努力するという方向で合意した。

ITUMFは、イスタンブール郊外ツヅラ地区約6万7,000平方メートルの敷地に45の建物を有し、その総面積は1万2,500平方メートルになる。教官数は約80名で、高校卒業者を対象にした航海科と機関科が開設されており、定員は1学年150名（航海100名、機関50名）。また、実務者を対象に再訓練を行うMSTCと、船員資格に係る試験の実施、資格の付与を行う船員試験センター（SEC）が併設されている。

プロジェクト実施を想定した場合、専門家の執務室及び機材の設置場所等は確保されており、C/Pについても最低1専門家につき1名が配置される旨、学部長から説明された。

(3) ワークショップ

調査団はITUMFで3日間のワークショップを開催し、参加者分析、問題分析、目的分析、プロジェクトの選択を行った。プロジェクトの上位目標は人為的ミスによる事故が減少すること及びトルコ商船による事故が減少することであり、そのためにITUMFの学部教育の向上と、MSTCで実施される訓練コースの向上をプロジェクト目標とすることに、双方が合意した。プロジェクトの詳細活動計画については、次回調査の課題にすることとした。

(4) 協力計画概要

ITUMF側との協議で、要旨以下を合意した。

1) プロジェクト名

トルコ海事教育・訓練改善プロジェクト (The Project on the Improvement of the Merchant Maritime Training and Educational Capacities in Turkey)

2) 投入

協力期間は5年間を予定し、日本側の投入としては4名程度の長期専門家(航海、機関、船舶信号(VTS)、調整員;リーダーは専門分野を兼務)の派遣と、年間2~3名程度のC/P研修の受入れを行い、操船シミュレータを中心とした機材を供与する。詳細は1998年度中に実施する長期調査で検討する。

(5) その他関連機関との協議

1) UNDPトルコ事務所では、「UNDPがITUMFに対し1996年まで施設整備やカリキュラム改善のための技術指導を行い、成功プロジェクトとして評価されている」との説明があった。さらに「UNDPが行う援助は、最近では環境・貧困対策等の社会開発分野に重点が置かれているが、ITUMFが地域を対象とした教育・訓練機関としての機能を発揮する方向性があれば、UNDPは資金以外の部分で支援できる可能性がある」との示唆もあった。

2) ITUMFが実施している海事安全訓練コースには、民間の船会社、政府関係機関それぞれから船員を訓練に参加させている。これらの参加機関のなかから国営海運3社(各社の概要等は「表14 トルコの海運会社1~3」を参照)を選び、それぞれの責任者と協議した。海運関係事業はいずれも国有企業が大きなシェアを占めていたが、構造調整と民営化によって縮小傾向にあること、一方、ボスポラス海峡を中心とした安全管理は逆に国家プロジェクトとして強化されているとの話があった。これら海運会社はいずれも数百名を上回る船員を有しており、ITUMFが実施している訓練コースへの参加ニーズは国営海運会社の船員だけでも相当数あるとの印象を受けた。

(6) 総括(今後の対処方針)

協議は終始極めて熱心に行われ、トルコ側の意欲をうかがわせるものであった。ITUMFは新興学部としては良く運営されており、国からの予算に限界はあるものの、業界の支援と期待は強い。トルコ政府が当学部も参加させたボスポラス海峡中心の安全航行対策を重視していることから、プロジェクト方式技術協力による支援は妥当と考えられる。

トルコ側は、日進月歩の海運技術の発展と今後のSTCW（船員の訓練及び資格証明並びに当直基準に関する国際条約）改正スタンダードの進行計画のなかで学部の教育課程と新規開設予定の船員再訓練コースをどう運営するかに不安をもっている。さらに現在、研究コース（大学院）を準備し始めているので、これらに対する日本人専門家の指導・助言を求めているものの、技術協力要請の詳細については明確に説明し得なかった。

今次調査は事前調査ではあるが、要請内容が不明であり、かつ情報がほとんどなかったことにより、まず先方の意欲とニーズの確認を優先させた。この結果、収集した資料を十分に検討し、要請された協力分野を論証する余裕がなかった。このため、1998年度中にも短期調査を行い、ITUMFのカリキュラム改善の計画、今後予定されるSTCWスタンダードに見合ったMSTCのコース開設計画、必要な機材の確定と優先順位づけ及び先方の設置計画を確定する必要がある。

また、ITUMFの活動が、国の政策で当初から国内研修や第三国研修を視野に入れて実施されてきたことから、日本の協力の方向もプロジェクト方式技術協力の前半に機材など日本側インプットを集中的に行い、後半にはJICAの「第二国研修」「第三国研修」とを併せて行うよう検討する方が効果的であると思われる。

なお、トルコ側はかつて個別専門家の対応に苦慮した経験から、長期専門家についてキャプテンレベルではなく、日本の大学等で教師経験があること、またITUMFでしばしば実施する周辺国セミナー等にも十分対応できるような英語力のある人物を求めてきた。学部長からのこの依頼は極めて真摯なものであり、かつC/Pとして予定される教官の水準を考えると当然の意見と判断されることから、この点、日本側としても十分に配慮すべきであろう。

3 . 要請の背景

3 - 1 現行国家開発計画における本セクターの位置づけ

3 - 1 - 1 現行国家開発計画の目標と課題

(1) 目標

現在第7次5か年開発計画（1996～2000年）が実施されており、グローバルゼーションによるメリットを最大限に生かすことによって現代国際社会の潮流に乗り、トルコを開発途上国から開発国に引き上げることを主要な課題とし、次のような目標を掲げている。

第7次5か年計画の中心テーマは現行諸制度の改革であり、従来の開発計画の形式（成長目標を設定し、実現に向けた優先プロジェクトを列挙し、開発資金量を推定するという形式）のような目標追求型のアプローチではなく、構造改革を中心としたアプローチを採用していることに最大の特色がある。

自由で民主的な社会の実現

個人の尊厳の重視

持続可能な開発の実現

生活水準の向上と所得配分の改善

生産性の高い雇用の実現

工業化の促進

技術の向上と革新

教育水準の向上

文化水準の向上

社会保障制度の拡充とベーシック・ヒューマンニーズの充足

環境の回復と保全

(2) 課題

特に重視する点として、欧州連合（EU）との関税同盟によるメリットを最大限に享受できるよう、現行の法制度及び行政制度を見直し、構造改革を推進し、国際競争に適合した市場環境を整備することがあげられている。また、国際的な工業化を担う人材を育成し、最新の技術の導入と開発を促進し、民間活力を最大限に生かせるよう、国家による市場介入を最小限に抑える努力をうたっている。

主要な構造改革分野として、人的資源開発、産業開発と国際化、経済効率向上のための構造調整、地域間不均衡の是正、環境の回復と保全、の5分野があげられ

ており、合計20の構造改革項目が列挙されている。

3 - 1 - 2 本セクターの位置づけ

現行国家開発計画において本セクターの記述はないものの、前記課題のうち、人的資源開発、産業開発と国際化、経済効率向上のための構造調整、環境の回復と保全、との関連は深いと思われる。

人的資源開発：教育を改善し、職業教育を充実させることによって労働者の質的向上をめざしており、同国において重要な海運業界においても、人材養成は緊急の課題となっている。

産業開発と国際化、経済効率向上のための構造調整： において産業分野のなかでは特に工業部門の成長を重視し、EUとの関税同盟によるメリットを最大限に享受できるようになることをめざしている。そのためには交通網、特に海運網の充実が不可欠である。また、 では特に黒海沿岸諸国との関係強化に役立つ交通システムの確立をめざしている。

環境の回復と保全：近年特に問題となっている黒海等周辺海域の環境汚染の原因としては污水处理施設の未整備に加え船舶事故等があげられる。例えば、1994年にボスポラス海峡で人為的ミスにより生じた大型タンカー同士の衝突事故では、5万トンの原油流出により黒海の環境に多大な被害を及ぼしている。このような船舶事故の多くは人的原因によるものであることから、船舶の安全航行を実現する海事教育の充実は重要な課題である。

さらに国家開発計画以外の要因として、黒海経済協力機構（BSEC）との関係がある。本機構は1992年6月に発足し、加盟国はトルコ、ロシア、ウクライナ、アルメニア、アゼルバイジャン、グルジア、モルドヴァ、ルーマニア、ブルガリア、ギリシャ、アルバニアの11か国である。第1回首脳会議はイスタンブールで開催され、黒海周辺での民族紛争は、欧州安保協力会議（CSCE）の原則に基づいて解決することをうたったボスポラス宣言と、黒海地域の通信・交通基礎整備、経済活動の活性化をうたった黒海経済協力宣言を発表し、各国ともこれらの推進に努めていることから、本セクターの重要性は高いといえる。

3 - 2 トルコの海運政策

現行国家開発計画にもあるとおり、国家による市場介入を最小限に抑え経済効率の向上を図るため、国営企業の民営化が推進されている。国営の海運企業に対し、国からの助成等は一段と厳しくなっており、民営化による独立採算性が求められるなど、トルコ海運業は過渡期を迎えている。船舶の近代化を図る海運業界に対しては、造船所への投資に対して優遇税制を行うなどの措

置をとってはいるが、業界の財源確保問題は依然として大きい。

また、SPO及びUMAによれば、黒海から地中海に至るボスポラス海峡を有するトルコは、黒海沿岸諸国からの貿易・流通の中継基地として重要な位置を占めており、同地域での経済的立場の強化という点で海運振興は重要目標であり、船舶の近代化、港湾等の整備を促進中とのことであった。加えて、ボスポラス海峡は最小可航幅が300メートルしかない世界有数の船舶交通の難所であり、海上交通の増加、船舶の大型化に伴い船舶事故も増えており、その大部分は人的要因によるものであることから、船員の技術水準の向上についても重要目標とのことであった。この海峡の問題については、「ボスポラス海峡を含めたマルマラ海域の安全輸送のための交通システム及び国際海峡としての海峡の位置づけを検討する特別プロジェクト」が組まれており、大きな注目を集めている。

トルコでは、海運分野における諸問題に取り組むため、運輸省やUMA等にまたがっていた海事行政を1つにまとめようという意図から、海運省（Ministry of Maritime Affairs）設立に向けた準備が進められている。

船員政策としては、改正STCW条約の批准に基づき、条約に適合した船員資格の整備及び船員育成に努めている。

3 - 3 海運・船員関係行政機構

海運・船員行政を管轄するのはUMAであり、一般的な海運・船員行政から船舶の安全航行管理まで海に関する幅広い業務を管轄している（組織図は図1のとおり）。また、STCW条約に準拠した船員資格を発行する権限も有しており、ITUMFのカリキュラム内容等についての指導も行っている。また、ITUMFはUMAから海事資格証明及び海技免状の実施機関としての業務を委託されており、両機関は強い結びつきをもっている（ITUMFは、海技試験等を実施している唯一の機関）。

ただし、ITUMFの行政上の上級組織は大学審議会となっており、予算などもこの審議会で決定されている（文部省は初・中等教育のみ管轄）。

また、その他の機構として、海運会社及び海事関係の会社の大多数で組織する海運集会所（Chamber of Shipping）があり、トルコ海運業発展のため政府などに対して提言を行っている。また、同機構はトルコ船員の質の向上のためトルコ船員教育基金（Turkish Maritime Education Foundation）を設立し、船員教育機関に対して援助を行っておりITUMFに対しても種々の援助を行っている。また、毎年、「Turkish Shipping Sector Report」を発表しており、海運に関するデータも多数保持している。

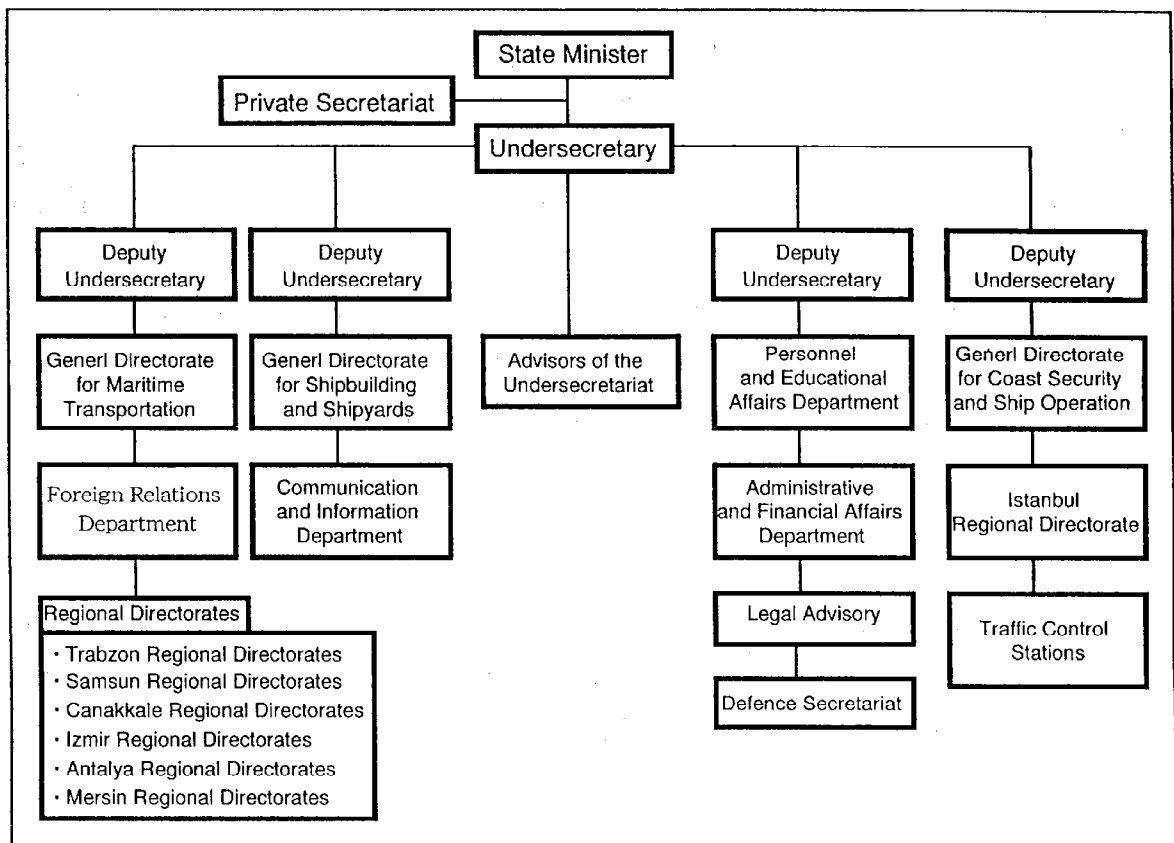


図1 UMA組織図

3-4 海運状況と問題点

3-4-1 全般的概要

海運業界全体としては構造改革が進められていることがあげられる。トルコではこれまで国有企業が大きなシェアを占めていたが、国の財政事情の悪化により構造調整と民営化が進められており、現在は縮小化傾向にある。そのためリストラによるスリム化が進められているなど、トルコ海運業は過渡期を迎えている。

このような厳しい財政状況のなかで、トルコは商船隊の規模を拡張するとともに、高齢化が進んでいる船舶の若返りを図るなど、船舶の近代化を促進中であるが、財源不足が深刻なこともあり、その財源をどうするかが問題となっている。

また、IMOが船員の訓練及び資格証明並びに当直の基準に関する国際条約（1978年STCW条約）を1995年に改正したことを受け、その批准国であるトルコも2002年からは改正条約に適合した訓練による資格証明を発給する必要があることから、新規船員教育の充実、現職船員の再訓練の実施及び資格付与等の実施が課題となっている。

3 - 4 - 2 船腹保有状況、海上輸送量等

(1) 船腹量

トルコ海運の船腹量は1996年現在で662万G/Tであり、この10年間で約2倍に増加している。また、船腹保有数も1985年の802隻から1996年には1,179隻となり、約47%の伸びを示している(世界の1.4%の船腹)。今後も造船需要の増加が予測されており、船腹量の増加傾向は2000年まで続くものと思われる。

内訳は708隻(87万G/T)が自国建造船で、471隻(575万G/T)が輸入船である。また、60%近くがBulk CarrierでOil Tanker及びDry Cargoが10%強となっており、Ro-Ro Carrierがそのあとに続いている。平均船齢は21.5歳で船舶の老齢化が進んでいることがうかがえる。

(2) 海上輸送

トルコの貿易量は年々増加傾向にあり、また海上輸送が80%強を占めている。1997年には海上総輸送量が、約1億1,000万トンにも及び、初めて1億トンを超えるなど、ここ10年間で倍増している。主な貿易相手国は、ドイツ、米国、イタリア、ロシアでEU諸国との貿易量が多い。

トルコの荷動きを見ると1997年は1億1,264万トンで、その内訳は輸出が3,700万トン(対前年比96.4%増)、輸入が7,564万トン(対前年比3.8%増)である。

輸入貨物の内訳は石炭、原油、機械・機器の貿易量が大きな割合を占めている。石炭は、火力発電用(一般炭)だけでなく鉄鋼を製造する際の原料(原料炭)としても使用されることから、年々貿易量が増加している。輸出貨物の内訳は鉱石、石油製品、機械・機器等が大きな割合を占めている。石油製品の輸出は、トルコの同地域における特徴を示しているものであり、黒海沿岸諸国との関係がより一層深まれば、今後とも増加が見込まれるものと考えられる。1997年のトルコの輸出量は好調に推移し、前年の約2倍増となった。ただ、どの品目が伸びたのかは不明で、今後の分析が必要である。

(3) 内航輸送

三方を海に囲まれているトルコでは、大宗貨物輸送において内航輸送も活発に行われている。内航輸送はここ10年間、2,000万トン前後で推移しており、ほぼ横ばい状態である。内航輸送の約60%は石油製品関連である。

内航輸送はその特性上大宗貨物の輸送が多数を占めるが、近年はRo-Ro船やコンテナ船の船腹量も確実に増えてきており、雑貨等の輸送も増える傾向にある。

3 - 4 - 3 船員需要と将来予測

現在、トルコ人船員数は約7万名であり、その内訳はオフィサー1万2,500名、船員5万7,500名となっている。全体の82%を占めている船員は、ほとんどが一般の初等教育を受けているのみで、海事安全・一般海事に関する教育は不十分であると指摘されている。このことから、現職船員の再訓練に対する需要も高くなっている。

船員の需要については、今回の調査では、今後どれくらい伸びると予想されているのか正確なデータは入手できなかったが、前述のとおりトルコ商船隊が10年間で2倍に増加し、今後もその増加傾向が続くと予想されていること、今後中央アジア諸国からの石油輸出ルートとしてパイプライン経由後、黒海から海路で輸送されることになった場合、黒海・ボスポラス海峡・マルマラ海の海上交通の激増が予想されること等を考慮すれば、今後ともその需要は高いと思われる。

3 - 4 - 4 港湾等施設

トルコは、国土の三方を海に囲まれ（黒海、マルマラ海、エーゲ海）、総延長約8,300キロメートルの海岸線を有している。

15の主要公共港があり、運輸省管轄の下、トルコ鉄道公社（TCDD）・トルコ海運公社（TDI）が管理運営している。

TCDDが管理運営する港湾

イスケンデルン、メルシン、ハイデルパシャ、デリンジエ、バンディルマ、サムスン、イズミール

TDIが管理運営する港湾

イスタンブール、テキルダ、クサダシ、ギレスン、リゼ、ホバ、オールドゥ、アンタリヤ

地域別にみると、黒海沿岸（サムスン、ホバ等）には、主要公共港を中心に多数の特定港、地方港が点在している。エーゲ海沿岸（イズミール、メルシン、イスケンデルン等）は、地中海貿易ルート的一端を担い、コンテナの取り扱いが多い。マルマラ海沿岸（ハイデルパシャ、デリンジエ、バンディルマ、テキルダ等）は、後背周辺地域一帯に集積する商工業地帯のゲートポートとしての役割を担っている。

3 - 5 船員教育・訓練ニーズ

近年、大型海難事故が相次ぎ、その事故原因の大部分が人的なミスによるものであることから、IMOは船員の訓練及び資格証明並びに当直の基準に関する国際条約（1978年STCW条約）を1995年に改正した。改正STCW条約は、1997年2月に発効し、2002年からは改正条約に適合した訓練による資格証明を各国が発給しなければならないこととなっている。

トルコにおいては船腹量の増大で（10年前に比して約40%の増加）船員需要も著しく増加している一方で、トルコ籍船舶の海難発生率は、衝突、乗り上げ、火災の分野において高くなっている。現在、トルコ人船員数は約7万名（オフィサー1万2,500名、部員5万7,500名）であるが、その82%を占める部員のほとんどが十分な海事教育を受けていないという状況である。このようなことから、黒海沿岸諸国地域の流通、貿易の要所となっている同国にとって船舶安全航行実現のための改正STCW条約に適合した的確な能力と技術を有する船舶職員を養成することは緊急の課題となっている。

トルコにおける船員新規養成機関は、オフィサークラスの養成機関（ITUMF 1校のみ）、その他部員クラスの養成機関（短大、高専、高校）があり、現職船員の再訓練を実施している機関としてはMSTCがある。

唯一のオフィサー養成機関であるITUMFにおいては、改正STCW条約に基づいたカリキュラムを実施しているものの、機材等の老朽化・未整備や教官の資質の面で期待される十分な機能を果たしていない状況であり、唯一の既存船員再訓練機関であるMSTCにおいても改正STCW条約に定められた訓練コースが2つ開設されているのみで、まだ整備されていない状況である。

このようなことから、オフィサー新規訓練・既存船員再訓練の両方において、技術協力に対するニーズは極めて高いといえる。

また、トルコは、地中海、エーゲ海及び黒海に面し、かつ黒海と地中海を結ぶボスポラス海峡及びダーダネルス海峡を有しており、黒海沿岸諸国地域の流通、貿易の要所となっている。特にボスポラス海峡は、最小可航幅が300メートルしかない世界有数の船舶交通の難所であり、トルコをはじめとする黒海沿岸諸国の石油産品等の貿易量増大に伴い船舶数も増加し、同海峡の通行量は10年間で倍増している。このような背景から安全航行にはかなりの関心をもっており、自国船員だけでなく近隣諸国の船員の質の向上にも注目している。MSTCでもブルガリア、ルーマニア、クロアチア、ユーゴスラヴィア等、黒海沿岸諸国等からの研修員を受け入れており、同国の船員教育レベルの改善によって、同地域への波及効果を期待できるという視点からも、協力ニーズの高さを考察できる。

4 . 要請内容

4 - 1 概要

(1) プロジェクト名称

英文 : The Improvement and the Promotion of the International Merchant
Maritime Training in Turkey

和文 : トルコ海事教育改善・振興プロジェクト

(2) 技術協力目標

各種シミュレータの整備及びその設置、操作、保守・管理に係る技術移転を実施し、
総合訓練センターを設立する。

(3) 協力期間

1998年1月から5年間(トルコ側はフェーズ (2003~2008年)にも言及)

4 - 2 技術協力内容

(1) 日本人専門家の派遣

1) 長期専門家

少なくとも5名の長期専門家の派遣が望まれる。各専門家の担当分野は次のとおり。

航海 (Deck)

機関 (Engine)

無線操作 (Radio Operations)

コンピューターエンジニア (Computer Engineer)

電子工学技術者 (Electronics Technician)

2) 短期専門家

長期専門家の要請に基づき3~4名の派遣が望まれる。専門家に期待する業務は以下のとおり。

- ・プロジェクトの運営
- ・C/P、その他スタッフの訓練
- ・Factory Acceptance Tests
- ・据え付け
- ・Site Acceptance Tests
- ・操作の安全管理

- ・保守
- ・ Optimised System Utilisation
- ・ Positive Recruitment and Personnel Motivation
- ・ Direct Access to Supplier's Design Review Board
- ・ Regular System Upgrades

(2) 研修員の受入れ

年間3名×5年間で計15名のC/Pが、日本において、プロジェクトと類似のシミュレータに関する研修を受ける。

(3) 機材供与

次のシミュレータがプロジェクト目標を達成するために必要である。機材名及び仕様については表1のとおりである。

表1 トルコ側の要請する機材一覧

	機材名	仕様
1	操船シミュレータ Shiphandling Simulator	<ul style="list-style-type: none"> ・ 5 Channel visual system (Barco Projectors) ・ Up to 16 Own Ship (OS) Cubicles Connected to the main system ・ Own Ship Cubicles to be configured as <ul style="list-style-type: none"> - basic "traditional"bridges to advanced integrated bridge solutions. - Fast craft (cockpit) bridges - A Vessel Traffic Services (VTS) station - A Search and Rescue (VTS) station - Naval Bridges ・ Different solutions for visual system, in terms of performance and/or display systems such as: <ul style="list-style-type: none"> - Retro Boxes - Monitor Based ・ Database Preparation Tools (for Exercise Areas including 3D Visual Databases) ・ Different solutions for Motion Systems ・ List of Hydrodynamic Ship Models, Target Ship Images, and Exercise Areas to be discussed
2	エンジンルームシミュレータ Engine Room Simulator	<ul style="list-style-type: none"> ・ 2 stroke engine / ship software model ・ Full operational Engine Control Room including also switchboard and boiler console ・ Engine Room with max. no of panels / consoles and sound. ・ Instructor System ・ At least 5 Cadet workstations ・ Additional software models (Medium speed -, Steam -, Diesel Electric Propulsion) ・ Integration with Shiphandling Simulator ・ Large Screen Projector system
3	船舶信号システムシミュレータ Vessel Traffic Services Simulator	<ul style="list-style-type: none"> ・ VTS simulator with 2 Instructor Operator Stations (IOS) ・ At least 8 Vessel Traffic Regulator Stations ・ At least 2 Ship Operator's Stations ・ Integration with Shiphandling Simulator
4	荷役実習シミュレータ Cargo Handling Simulator	<ul style="list-style-type: none"> ・ Product Carrier software model ・ Full Operational Cargo Control Room ・ Instructor System ・ At least 3 Cadet Workstations ・ Additional Software Models (Chemical -, LNG -, or LPG-Tanker) ・ Common instruction station with Engine Room Simulator
5	Oil Spill Management Trainer	<ul style="list-style-type: none"> ・ A Multi position Instructor Operator Station ・ Communication to Operational Control Room <ul style="list-style-type: none"> On Scene Commander Cubicle Group Leader Cubicles Strike Team Leader Cubicles Helicopter Cubicle
6	バラストコントロールシミュレータ Ballast Control Simulator	<ul style="list-style-type: none"> ・ Software Model of Float On - Float Off vessel for operation on the Cargo Handling Simulator / Engine Room Simulator workstations ・ Operational Consoles ・ Additional software model (Semi-sub platform)
7	オイル-ガスパロセスシミュレータ Oil and Gas Process Simulator	<ul style="list-style-type: none"> ・ Software model of Crude Refinery for operation on the Cargo Handling Simulator / Engine Room Simulator workstations ・ Additional Software models (oil and gas / petrochemical /models)
8	熱力プラント Thermal Power Plant	<ul style="list-style-type: none"> ・ Software model of fossiile fired thermal power plant for operation on the Cargo Handling Simulator / Engine Room Simulator workstations

5 . 相手国のプロジェクト実施体制

5 - 1 実施機関の組織及び事業概要

I T U M F はイスタンブール工科大学 (I T U) の 1 学部で、イスタンブール郊外ツツラ地区、約 6 万 7,000 平方メートルの敷地に開設されている。1884 年に Merchant Captain Boarding School としてスタートし、1981 年に現在のツツラ (Tuzla) 地区に移転し、Merchant Marine Academy となった。1981 年に I T U の分校としての法制化が進められ、1992 年 7 月 3 日に正式に I T U M F となった。また、U M A からの委託を受け、1995 年に実務者を対象にした再訓練を行う M S T C と船員資格に係る試験の実施、資格の付与を行う S E C が併設された (I T U M F の組織は図 2 参照)。

I T U M F は高等学校卒業の男子を対象とした 4 年制の船舶職員養成機関で、航海学科、機関学科、海運管理工学科及び基礎科学科の 4 学科がある。教官は 80 名で、学生の入学定員は航海学科 100 名、機関学科 50 名である。トルコ全国で一斉に実施される大学共通試験の結果上位の生徒が入学している。全寮制で、学費、寮費、食費、制服代等すべてを大学が負担し、わずかではあるが手当も支給されている。卒業生は学士号を取得するとともに航海学科は Ocean going Watchkeeping Officer (W / O)、機関学科は Unlimited Engineer Officer (E / O) の外航初級免状の海技免状を取得し、遠洋区域を航海区域とする船舶に 3 等航海士・機関士として乗船できることになる。カリキュラムは、I M O のモデルコース 7.01 ~ 7.04 (航海学科は 7.01 及び 7.03、機関学科は 7.02 及び 7.04) を上回ったコースとなっており、1995 年 S T C W 条約に対応した内容に改訂されている。1941 年以後の卒業生は総計 3,475 名で、船舶職員として乗船、所要の海上履歴を得て船長や機関長となり、以後、海上経験を生かして陸上の海運関連会社の要職に就いている。

M S T C は、トルコ唯一の安全訓練センターで、首相府海事局の管轄の下、改正 S T C W 条約に対応した訓練コース (Survival at Sea & Personal Safety, Marine Fire Fighting, Operation of Marine Survival Craft, First Aid 等のコース) を既存船員を対象に実施し、資格証明を行っている。民間や国営の大手船会社は、所属船員を訓練コースに計画的に派遣しており、1996 年の受講生は約 9,000 名であった (うち約 150 名は、ブルガリア、ルーマニア、クロアチアそしてユーゴスラヴィアの船員)。

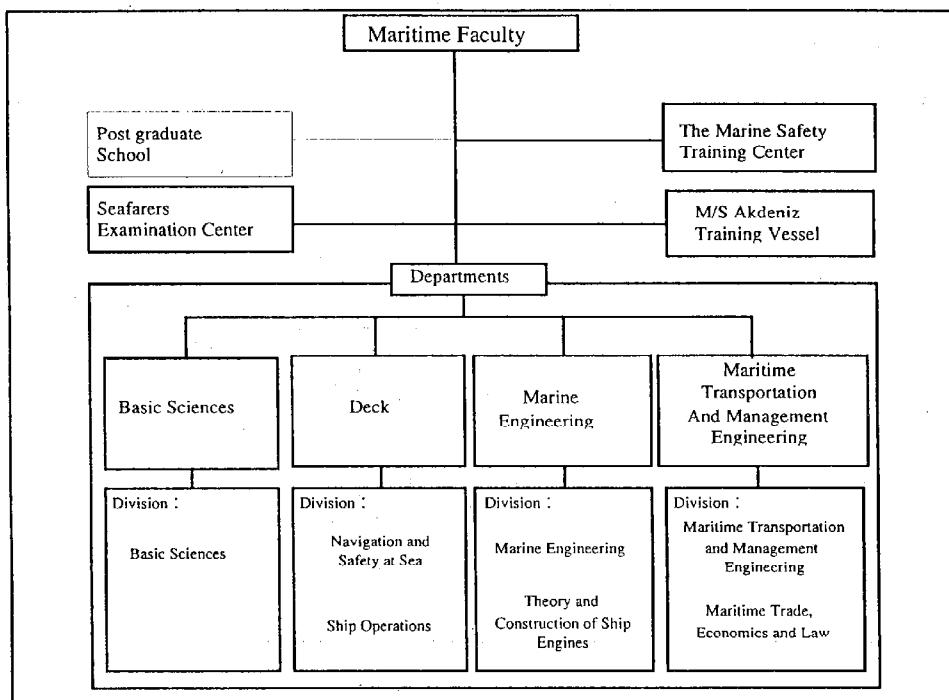


図2 ITUMFの組織図

5-2 実施機関の活動概要

5-2-1 ITUMF：航海科を中心に

(1) 座学課程

航海科の定員は100名（機関科：50名）。カリキュラムは表2のとおりで、大学入学試験に合格した学生はITUMFが行う英語試験を受験し、合格者は4年間のコースに従ったカリキュラムを履修する。英語試験不合格者は入学後1年間は英語のみの授業を受けたあと、再度試験を行い、その合格者のみが学部カリキュラムを履修することとなる。

学部カリキュラムは、3年間でIMO 7.03 PLUSに従った座学課程を2年間、乗船実習を1年間行う。この1年間の乗船履歴は条約に定めるものであり、1年及び2年時それぞれ2.5か月、3年時7か月の乗船実習が割り振られている。学生はこの3年間の知識、技能、履歴をもってSECの行う海技試験の受験資格を取得する（海技試験は2月と9月の年間2回実施）。この資格レベルはW/O（外航船の2等航海士、日本の3級海技士レベル）であり、この試験の合否にかかわらず4年の課程に進学できる（合格率約90%）。4年時はIMO 7.01 PLUSに従った座学課程を1年間履修し、卒業となる（学士号を取得）。なお、過去5年間の入学者数及び卒業生数は表3、4のように、卒業生の就職状況は表5のようにになっている。

学生は、卒業後船舶職員として1年間の乗船勤務を経てC/O（外航船の1等航海士、日本の2級海技士レベル）の海技試験受験資格を取得する。C/O免許を取得後更に3年間の乗船勤務を経るとMaster（外航船の船長、日本の1級海技士レベル）海技試験受験資格を取得する。

表2 航海科カリキュラム

	科目	(講義-実習)	科目	(講義-実習)
1 学年	<1学期>		<2学期>	
	数学Ⅰ	(4-0)	数学Ⅱ	(4-0)
	物理学Ⅰ	(2-1)	物理学Ⅱ	(3-1)
	海洋化学	(2-1)	統計学	(2-0)
	コンピュータプログラミング*	(2-1)	航海当直Ⅰ	(4-0)
	船用原動機	(2-0)	運用Ⅱ	(2-1)
	運用Ⅰ	(1-1)	航海Ⅱ	(4-2)
	航海Ⅰ	(4-2)	海上安全論Ⅱ	(1-1)
	海上安全論	(1-1)	航海士英語Ⅱ	(3-0)
	航海士英語Ⅰ	(3-0)	体育Ⅱ	(1-1)
体育Ⅰ	(1-1)	基本海事用語		
プログラミング入門	(2-0)			
2 学年	<3学期>		<4学期>	
	数学Ⅲ	(3-0)	数学Ⅳ	(3-0)
	球面三角法	(2-0)	流体力学	(2-0)
	力学	(2-0)	船舶安定論	(3-1)
	電子工学	(2-1)	航海Ⅳ	(4-2)
	造船工学	(2-0)	電子航海Ⅰ	(2-2)
	航海当直Ⅱ	(4-0)	海上安全論Ⅲ	(2-2)
	運用Ⅲ	(2-2)	経済学	(2-0)
	航海Ⅲ	(4-2)	航海士英語Ⅳ	(2-0)
	航海士英語Ⅲ	(2-0)	トルコ史Ⅱ	(2-0)
トルコ史	(2-0)	貨物取扱及び荷役	(3-0)	
造船学入門	(2-0)	応急措置	(2-0)	
		海上運送論	(2-0)	
		港湾管理論	(2-0)	
3 学年	<5学期>		<6学期>	
	操船論Ⅰ	(1-1)	乗船実習 7か月	(28単位)
	気象学Ⅰ	(2-1)		
	航海Ⅴ	(4-2)		
	電子航海Ⅱ	(2-2)		
	載貨論Ⅰ	(4-0)		
	海上通信Ⅰ	(2-2)		
	法規概論	(2-2)		
トルコ語	(2-0)			
用船契約	(2-0)			
4 学年	<7学期>		<8学期>	
	船用原動機Ⅱ	(2-0)	航海当直Ⅲ	(2-0)
	貨物船安定論Ⅱ	(3-1)	シミュレータ	(2-3)
	操船論Ⅱ	(2-1)	気象学Ⅱ	(1-1)
	海洋学	(2-0)	載貨論Ⅱ	(3-0)
	航海Ⅵ	(4-2)	海上通信Ⅱ	(2-2)
	海上安全論Ⅳ	(2-1)	人事管理論	(2-0)
	海事法規	(4-0)	企画	(2-4)
	用船契約	(2-0)	船用機関	(3-0)
	トルコ語Ⅱ	(2-0)	海事法規	(2-0)
	海運経営論	(2-0)	航海	(3-0)
	海上保険論	(2-0)	人事管理論	(2-0)

* 備考 (4-2)の意味: 4:講義時間4時間 = 4単位
2:実習時間2時間 = ×0.5単位 (2×0.5=1単位)

表3 ITUMFの入学者（過去5年間）

	93/94	94/95	95/96	96/97	97/98
航海科	103	110	99	103	97
機関科	51	50	46	55	53
合計	154	160	145	158	150

表4 ITUMFの卒業生（過去5年間）

	93/94	94/95	95/96	96/97	97/98
航海科	86	34	56	64	109
機関科	34	30	37	55	48
合計	120	64	93	119	157

表5 就職状況

		1994		1995		1996		1997		1998	
		求人	就職	求人	就職	求人	就職	求人	就職	求人	就職
自国	陸上	50	0	50	0	60	0	75	0	75	(0)
	海上	107	107	59	59	83	82	110	110	157	(157)
外国	陸上	0	0	0	0	0	0	0	0	0	
	海上	13	13	5	5	11	11	9	9	未	

(2) 乗船実習

STCW条約においては、総トン数500トン以上の船舶において航海当直を担当する職員の資格証明のための最小限の要件として、乗船履歴について以下の要件を定めている。

- ・ 1年以上の承認された海上航行業務を行うこと（STCWコードA-II/1の要件を満たす船内訓練を含んだ承認された訓練計画に従うものであること）。
- ・ かつ、承認された訓練記録簿に記載されること。
- ・ 訓練計画がない場合には、3年以上の承認された海上航行業務を行ったこと。
- ・ 要求されている海上航行業務の期間中に、船長又は資格を有する職員の下で6か月以上の期間、船橋における当直の任務を行ったことがあること。

前述のとおり、ITUMFの学生は3学年終了時にはW/O（外航船の2等航海士、日本の3級海技士）の資格を得ることから、それまでに1年間の乗船実習を履修することとなっている。なお、この乗船実習はITUMFの定める訓練計画に従っており、1

学年で2.5か月の初期導入に始まり、2学年の2.5か月、3学年の7か月実習で修了する。訓練概要はITUMFの作成した（実質はIMO及び国際海運連盟（ISF）より示されているモデルコースを引用している）訓練記録簿に記載されている。

改正STCW条約は、必要とされる能力基準個々について、能力評価の基準、能力の証明方法について定めている。これによりIMO及びISFで定めるTRBの内容もそれぞれの訓練項目についてSupervising officerを設ける等一部改訂された。一方、ITUMFのTRBはモデルコースを引用してはいるものの、訓練項目を列挙しているだけであり、能力の証明についていかなる手段を用いているのか（各訓練項目の評価方法は不明である）は不明である。

乗船実習の受入先はトルコ商船隊であり、受入人数は船社、船種によって種々である。ITUMFの学生は特に英語能力について優秀であり、乗船実習中にDeck Workの英語を必要とする部分において船舶職員から頼られることが多いという。

ヨーロッパにおいては乗船実習は社船において行っているが、この場合、訓練担当の専属教官（職員）を配置し訓練を行っている。トルコでの実施体制は不明であるが、「現職職員から作業上頼られることがある」ということから判断すると、社船においては船体作業に片寄りがちになると考えられる。したがって、TRBに記載する訓練項目をすべて実施する状況にあるか疑問であり、今後確認が必要である。

5 - 2 - 2 MSTC

(1) 訓練コース

MSTCのパフレットによれば現在開設されているコースは総数24コースとなっている。ただし、これまで実施されたのは14コースで（表6参照）、1コースが15日前後の日程で行われ、年間平均25～26コース（重複あり）が実施されている。解説書の24コースについては疑問もあり、例えば Chemical Tanker Operation等は実物に代わる機材（シミュレータ等）が整備されていない状況で、どのように訓練を実施するのか不明である。

実施に際しては、MSTCの開設案内に従って参加応募があり、適当な人数（コースによって異なるが10～20名）が集まると実施される。履修者はMSTCの訓練を受講した証明書を持って各々のライセンス担当局に申請することで自動的に必要な証明書が発行される。ただし、海上遭難安全システム（GMDSS）取扱証明書については、郵政省の行う試験（筆記、口述）に合格しなければ得られない。

なお、各コースのこれまでの実施状況は表7のとおり。

表6 MSTCの開設訓練コース

開設コース	カリキュラム	コース数	資格	期間	選考基準
救命筏習熟	IMO Model course 1.23	24	職員/部員	2日	
初級消火	IMO Model course 1.20	24	職員/部員	3日	
生存訓練	IMO Model course 1.19	24	職員/部員	3日	
応急医療	IMO Model course 1.13	24	職員/部員	2日	
安全教育社会的責任	IMO Model course 1.21	24	職員/部員	5日	
GMDSS	IMO Model course 1.25	12	航海士	15日	
レーダ観測・プロットイング	IMO Model course 1.07	8	航海士	5日	
ARPA	IMO Model course 1.08	8	航海士	5日	なし
レーダシミュレータ	IMO Model course 1.09	8	航海士	5日	
電子航海	IMO Model course	8	航海士	5日	
国際安全管理	SOLAS Chapter IV ISM code IMO決議 A788(19)	25	職員/部員	3日	
船務一般	IMO Model course 1.13, 1.19, 1.20, 1.23	24	部員	5日	
証書試験関連訓練	ANNEX 2	24	職員/部員	2月	
当直基準	ANNEX 2	24	部員	5日	

表7 訓練コース実施状況

開設コース	志願者数	受入人数	修了者数
救命筏習熟	2,950	2,950	2,950
初級消火	2,980	2,980	2,980
生存訓練	3,050	3,050	3,050
応急医療	3,040	3,040	3,040
安全教育社会的責任	2,200	2,200	2,200
GMDSS	910	910	910
レーダ観測・プロットイング	285	285	285
ARPA	240	240	240
レーダシミュレータ	120	120	120
電子航海	135	135	135
国際安全管理	1,435	1,435	1,435
船務一般	9,240	9,240	9,240
証書試験関連訓練	1,500	1,500	1,500
当直基準	60	60	60

(1993.1.1.～1998.5.の総計)

(2) 対象者

船舶職員であって改正STCW条約に従った資格証明の取得のために行われるものである。

(3) 諸費用

訓練受講に必要な費用は表8のとおり。

表8 訓練受講費用

開設コース	授業料 (US\$)	宿舎費 (US\$)	食費 (US\$)	生活費/その他雑費
救命筏習熟	110/5コース	4/1夜	2/1食	なし
初級消火				
生存訓練				
応急医療				
安全教育社会的責任				
GMDSS	90/1コース			
レーダ観測・プロットイング	20/4コース			
ARPA				
レーダシミュレータ				
電子航海				
国際安全管理	90/1コース			
船内業務	20/1コース			
証書試験関連訓練	20/1コース			
当直業務	20/1コース			

(4) 教官

現場において訓練を直接指導する教官は、そのほとんどが学部に承認された教官（助手レベル）である。したがって、ある部分においては学部教官の学部での講義日程により、MSTCでの開設コースが左右されることがある。

現在のところ、開設されているコースの数では教官数は十分であるということであるが、実施するコースが増加すれば当然のことながら教官の増員も必要となり、学部内の定員の問題からも検討の必要がある。

5-2-3 SEC

1997年1月に設立されたもので、受験コース及び受験者数は表9のとおり。

表9 SECの受験コース及び受験者・合格者

	1997		1998		合計		
	受験者	合格者	受験者	合格者	受験者	合格者	通過率(%)
Port Capt.	624	199	522	310	1,146	509	44.42
Coastal Master	495	162	156	85	651	247	37.94
Yacht Master	83	26	130	64	213	90	42.25
Chief Officer	1	1	24	8	25	9	36.00
Master Class 4	0	0	6	0	6	0	0
Master Class 3	166	101	27	26	193	127	65.80
Master Class 2	12	2	29	19	41	21	51.22
Master Class 1	37	19	28	24	65	43	66.15
外航船当直職員	116	95	99	99	215	194	
外航船一等航海士	14	9	1	1	1	1	
外航船船長			1	1	1	1	
合計	1,548	614	1,037	651	2,585	1,265	

5-3 プロジェクトの予算措置

ITUMFの過去5年間の予算は表10のようになっており、全体的に予算は潤沢ではない。かつてITUMF卒業生は卒業後2年間政府が指定する海運会社での就業義務があり、その見返りとして政府から一定の予算措置があった。しかし1995年、国営海運会社の民営化に伴い就業義務も廃止され、政府からの予算措置も廃止される方向にある。したがってプロジェクト実施に係るトルコ側の投入については長期調査に際し詳細までつめる必要がある。なお、同学部は、図書館やMSTCの建設に際し、民間（海運会社、同窓会、Chamber of Shipping等）からの資金援助を得た実績があるように、比較的外部からの資金援助が可能であるという側面もある。

表10 ITUMFの予算（過去5年間）

	1994年	1995年	1996年	1997年	1998年
人件費	1,975,425	2,080,500	2,325,581	2,469,136	2,500,000
旅費等	13,500	11,500	9,302	11,111	7,750
保守・管理	95,300	89,750	73,256	104,938	327,900
消耗品	812,350	852,500	788,372	929,926	1,587,182
備品、Refurbishment等	15,350	13,400	11,628	15,432	11,734
Lab, Simulator, Workshop, Units, etc	35,000	31,500	25,721	37,037	37,037
大規模工事	60,000	52,500	46,512	61,728	61,728
合計	3,006,925	3,131,650	3,280,372	3,625,308	4,533,331

5-4 建物、施設等

キャンパスは、マルマラ海に面した400メートルの浜を有する6万7,000平方メートルの敷地で、その中には学部長ブロック、学部ブロック、教室、実験室、MSTC管理棟、学生寮、学生食堂、職員食堂、体育館、医務室及びゲストハウス等45棟の建物が点在し（別添3 fig. 1地図参

照)、延べ面積は1万2,500平方メートルである。

(1) ITUMF施設：ITUMFの教育・訓練施設は、表11のとおりa)～l)のものがある。

表11 ITUMFの施設及びその状況

施設名	状況
a) RADAR-ARPA シミュレータ	UNDPプロジェクト(1993-1996)により導入されたものの一つで、有効に機能している。ただし、訓練シナリオの内容が機器操作、機能の活用等の実習目的に見合ったものか調査が必要。
b) GMDSS実習室	訓練設備はほぼ整っている。調査ではインマルサットCの存在が確認できなかったが、GMDSS取扱者(航海士)としては、NBDP取扱いに関する高度の知識(通信士)までは必要とされておらず、GMDSS取扱者証明書の取得訓練には、機器の取扱易さの点からも必要な機器と史料する。
c) 航海研究室	航海計器設備は老朽品ではあるが、機器それぞれの構造/理論等を学ぶ上では十分。今後、備品個々の使用状況、破損状況、商船に設置されている一般的機種を調査の上、修理/新替え/購入の検討を要する。
d) 操船研究室	操船理論については、カリキュラムを調査研究部門にも展開していくという今後の展望を踏まえると、操船を含め船舶運用上の設備機材等が整備されているか、またその計画があるかを調査する必要がある。
e) 気象学研究室	
f) 舶用機関研究室	各々独立した棟にあり、各実験室には内燃機関、蒸気タービン、ボイラ、電動機及びポンプ等の部品が数多く展示され、模型も種々備えられているが、稼動状態にある実習機器は殆どなく、実技教育が十分に行えない状況である。機関学科の教官は、練習船の機関室を活用し、内燃機関あるいは発電機等の学生実習を行っている。しかし、練習船の船齢は43年で、近代化船に装備されている制御システムあるいは制御機器は殆どない。
g) 内燃機関研究室	
h) 蒸気タービン研究室	
i) 物理学研究室	
j) 化学実験室	物理/化学研究室は講義2時間、実習1時間というカリキュラムはあるものの、その現場の様子からほとんど使用されていない状況であった。
k) 英語教室	学部学生は入学時に英語の試験を行い、不合格者(年平均70~80名)は1年間の英語教育を受けることとなる。来年度(1999年)より、当該学生の授業をITUMFから本校に移す予定という。
l) コンピュータ教室	コンピュータ教室は現在整備中であった。

(2) 海事安全訓練施設等 (表12参照)

- 1) 生存訓練用室内プール(救命筏関係訓練用のプラットフォームを含む)
- 2) 消火訓練室
- 3) 応急医療実習室
- 4) 海事安全訓練事務室
- 5) 救命艇/救助艇及び降下訓練用ダビット

表12 海事安全訓練施設とその状況

施設名	状況
生存訓練用室内プール	UNDP/IMOの援助により整備されたもので最新の技術が導入されており、救命筏の降下、筏への乗込み訓練について実船を想定し行うことができ、音響設備／造波設備等荒天の臨場感をも再現することが可能である。生存訓練を見学する機会を得たが、訓練に当たる教官は適切な人数を配置し、生存技術に関する内容の基本から、細かでの確な指導を行っていた。
消火訓練室	消火訓練用施設は、IMOの上級消化モデルコースに定める設備そのものである。訓練現場を視察する機会は得られなかったが、条約に求める訓練を実施するのに十分なものと史料する。
応急医療実習室	応急医療関係備品項目について調査が必要である。
海事安全訓練事務室	
救命艇／救助艇及び降下訓練用ダビット	

(3) 練習船

練習船M/S AKDENIZは1997年7月に船会社から I T U M F に供与された。1955年建造の客船で、主機関としてディーゼル2基を搭載した2軸船である。全船室は空調付きで、食堂、プールや健康体操室等種々の施設がある。

船名	: M/S AKDENIZ
総トン数	: 7,864トン
主要寸法	: 全長 144.31m ・ 幅 18.86 m ・ 深さ 5.49m
主機関	: ディーゼル 2基 MAN 8Z/105A (3,620馬力×2機)
出力	: 2×4,160 BHP
速力	: 16 knots
搭載人員	: 学生 350名 ・ 乗組員 86名
その他	: ディーゼル発電機 (505BHP) 3台、ボイラー (6kg f/c m ² 、15 t/h) 1缶等を装備

練習船は近くに接岸できる棧橋がないため、Tuzla Bayの沖に錨泊している。機関学科の教官は、練習船の機関室を活用して、内燃機関あるいは発電機等の学生実習を行っているが、本船は船齢43年の老朽船であり、搭載機器等はかなり旧式で、近代化船に装備されている制御システムあるいは制御機器はほとんどない。

現在、運航経費はもちろんのこと、整備費捻出もままならない状況である。5～6名の当直者が交代で管理・整備にあたっている。

(4) その他の施設

- 1) 機械工場
- 2) 図書館
- 3) 印刷室(資料制作室)
- 4) 木工場
- 5) 金属加工及び溶接作業場
- 6) 体育館
- 7) グラウンド設備

図書館には5,000冊弱の書籍が収められているというが、海事関係書籍に限ればどれほどのものか、種類また刊行年月等(新旧)について調査が必要である。

5 - 5 C / Pの配置計画

各科には約80名の教官が在籍しており、専門家1名につき少なくとも1名のC / Pが配置できるということである。科目あるいは訓練内容によって担当の教授、助教授あるいは講師クラスが対応することとなると思われる。また、学部リサーチ、訓練センター充実のためのC / Pとしては学部長が妥当であろう。

供与機材が艀船あるいは機関室の大型シミュレータの場合は、複数の教官に技術供与ができるようにする必要がある。シミュレータコースの訓練期間は1週間あるいはそれ以上になると想定され、教官1名では訓練を担当できない。供与機材がエンジンルームシミュレータの場合、C / Pは船舶職員(機関士)としての乗船経験があることが望ましい。

C / Pは英語に堪能であることが必要(他方、専門家も英語が堪能であることが必要)。

6. 日本の協力との関連

ITUMFに対しては1名の個別派遣専門家が派遣された実績がある。また、UNDPプロジェクト（7-2参照）の一部として、1994年に航海、エンジンシミュレータの研修のため2名のインストラクターが6か月間日本で研修を受けた。また、民間レベルでは1998年に神戸日本汽船（株）が2名、日本郵船（株）が4名のITUMFの学生を乗船訓練受入れ予定である。

なお、船員教育に関する過去の類似案件としては、以下のプロジェクトが実施されている。

(1) 個別派遣専門家

岡田 啓夫（海事教育） 1996年2月27日～1998年2月26日

(2) 過去の類似案件

表13のとおりである。

表13 JICAが実施した過去の類似案件

プロジェクト名	協力期間	概要
タイ船員教育訓練センター拡張・近代化	1993.3.3～1998.3.2	タイ国の船員教育訓練センター(Merchant Marine Training Center)において、訓練内容を国際基準(STCW条約78)に合致したレベルまで引き上げることを目的に、カリキュラム・基本訓練課程の検討、カリキュラム・指導要領の策定及び評価改訂等を実施。
パナマ航海学校強化	1993.10.1～1998.9.30	パナマ国唯一の商船乗組員（士官及び部員）の養成機関であるパナマ航海学校(ENP: Escuela Nautica de Panama)において、ENPがSTCW条約78を遵守した研修課程を実施できるように、実践的研究・理論的研修の改善等を行う。
モロッコ高等海事学院	1996.4.1～2001.3.30	モロッコ国唯一の上級船舶職員の教育・訓練機関である高等海事学院 (ISEM) において、STCW条約95を遵守した教育・訓練過程を実施できるようになるために、船員教育方針の確立・カリキュラムの改訂・実習訓練の改善等を行う。

7 . 第三国（国際機関を含む）の協力概要

7 - 1 他の援助機関の動向

（1）主要先進国の援助

- 1）米国：基本的にはEconomic Support Fund（E S F）と少額の麻薬対策援助に限られる。これは米国がトルコを技術基盤及び開発運営能力が十分に発達した開発援助卒業国と見ていることによる。E S Fは米国の政策によって大きく変化するため、米国の対トルコ援助額は状況により大きく変化する。
- 2）ドイツ：贈与分が1億米ドル超であるものの有償資金協力による返却分の受取りが多いため総額として援助額は減少しており、1992年と1993年は5,000万～6,000万米ドルで推移した。
- 3）フランス：毎年5,000万米ドル程度で推移しており、多くは有償資金協力である。
- 4）英国：1,000万米ドル前後であり贈与が大部分を占める。
- 5）日本：1993年における日本の援助額は1,270万米ドルであった。対トルコ援助における二国間援助は多国間に比べて比重は低い。

（2）国際機関等

1）UNDP

UNDPはトルコに対し次の分野での支援を重視している。

国家的視点からグローバルアジェンダの実現を支援する。

国際開発協力及び開発途上国相互間の技術協力を支援する。

国家の人間開発目標の実現を支援する。

UNDPは1995年にUN Integrating Social Development Committeeを組織して国連諸機関との援助協力を推進するとともに、政府、NGOを含めて技術面・財政面から新たな協力方法を模索している。UNDPは東部及び南東部アナトリアの貧困軽減を重視しており、今後はすべてのプログラムをこの地域に集中する意向。

2）世界銀行

世界銀行の対トルコ援助の基本方針は次の3点である。

マクロ経済の安定化

人的資源開発の支援（基礎教育を重視）

都市インフラの整備

案件の形成にあたっては、政権にかかわらず継続して実施される可能性の高いプロジェクトを選定し、民間資本の導入によって実施される可能性の高いプロジェ

クトを重視する。世界銀行は民間資本の導入を促進するため各種保証ファシリティの整備を支援している。世界銀行による融資プロジェクトは現在24の案件があり、融資総額は32億7,400万米ドル、インフラストラクチャー部門への融資が全体の54%を占める。

3) European Union (EU)

トルコはOECD/NATO加盟国であり、EUへの統合を強く求めて国内のあらゆるシステムを欧州システムに適合させるべく諸制度を改革している。1996年1月における関税同盟(Customs Union)への加盟を契機に、国家による独占事業の解消、農業補助の削減、をめざす。EUはトルコに対し1996年から5年間にわたり3億7,500万ECUの資金援助を行い、また、環境・エネルギー・交通・通信などのインフラストラクチャー整備のためにヨーロッパ投資銀行による3億～4億ECUの資金援助を予定している。IMFにより承認された中期的なマクロ経済の安定化施策に対しては必要に応じて追加的な資金提供を行う。

7 - 2 ITUMFに対する援助

1993～1996年までの3年間、UNDP/IMOの援助により、トルコ海事安全訓練センタープロジェクトが実施された。このプロジェクトは、専門家によりSTCW条約78/95に基づくカリキュラム改善のための指導を行い教育体系の改善を図るとともに、各種訓練・教育施設の整備を行うものであった。結果として、トルコにおける成功プロジェクトの1つとして評価されている。現在UNDPの援助は社会開発分野(環境、貧困対策等)に移行しており、今後新たに海事セクターへの援助は予定されていない。しかしながら、ITUMFが地域を対象とした教育・訓練機関としての機能を発揮する方向性があれば、資金以外の部分では支援できるかもしれないということが示唆されている。

8 . P C M ワークショップ

8 - 1 概要

3日間にわたってプロジェクト・サイクル・マネジメント（PCM）手法に基づくワークショップを開催し、トルコ海事セクターの抱える問題を明らかにし、問題解決のための方法を検討した。結論としては、同セクターにおける最重要問題は海上事故のほとんどが人災に起因するということであり、その主な原因は、求められる安全業務遂行の知識・技術が不足している船員の存在、通信ミス、船員のアルコール・ドラッグに対する危険性の認識不足、船員の労働条件が悪いこと、があげられる。そしてこの問題解決のために以下の7つのプロジェクト候補があげられた（ITUMFが実施するという立場から検討された優先順）。

船員への理論的・実践的トレーニングアプローチ

船員教育者の育成アプローチ

通信改善アプローチ

カリキュラム改善アプローチ

研究活動アプローチ

特別社会教育アプローチ

労働条件改善アプローチ

次回調査においては、再度ワークショップを開催し、上記アプローチのなかからプロジェクトを選択し、プロジェクト・デザイン・マトリックス（PDM）を作成、最終的には詳細なプロジェクトの活動計画を立案することが望まれる。

今回のワークショップは参加者の立場に偏りはあったが、真剣な議論を通じて当該セクターにおける問題の全体像を把握し、問題解決のプロセスについて合意することができた。

8 - 2 ワークショップの目的

調査団派遣以前の段階でトルコ側から出されていた要請書だけでは海運の状況など不明な点が多く、C/P機関に派遣されていた個別専門家からプロジェクト方式技術協力実施体制についても問題点が指摘されていたため、本調査団は事前調査でありながらも、基礎調査を重点とした内容となった。このため、PCMワークショップ開催によるプロジェクトの立案についても、PDM作成や詳細活動計画に至る一連の立案プロセスまでは協議せず、当該セクターにおける問題の所存とその諸原因の分析、問題解決のための手段を日本側・トルコ側双方参加の下で明らかにすることを目的とした。そしてワークショップの結果を踏まえて協力範囲、方法、形態の概要を検討することとした。

8 - 3 ワークショップ実施スケジュールと参加者

調査期間中3日間をワークショップにあてた。実施スケジュールと内容は以下のとおり。

(1) 実施スケジュール

- ・ 4月15日 午前 P C M手法についてのプレゼンテーション
午後 参加者分析、問題分析
- ・ 4月16日 午前 問題分析
午後 目的分析、アプローチの特定と実施優先度の検討
- ・ 4月17日 午前 目的分析、アプローチの特定と実施優先度の検討

(2) 参加者

1) モデレータ：井田 光泰

2) トルコ側参加者：

・ I T U M F

Dr.Osman Kamil SAG	学部長
Dr.Sureyya ONEY	副学部長
Dr.Ahmet BAYULKEN	副学部長
Dr.Sezer ILGIN	海事法・貿易・経済科主任
Dr.Demir SINDEL	航海科準教授
Captain.Teoman AKIN	操船科主任
Captain.Nusret BELIRDI	ARPA/Radar Lab主任
Captain.Ozkan POYRAZ	GMDSS Lab主任
Chief Engineer Cengiz DENIZ	機関科研究助手
Captain.B Sitki USTAUGLU	航海科研究助手
山本 恒	客員教授

・ U M A

Mr.Nuzhet BILGIN	U M A イスタンブール地区指揮所検査官
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3) 日本側参加者

・ 調査団

高井 正夫	J I C A 社会開発協力部社会開発協力 第二課長
尾関 紀彦	運輸省海技大学校機関課教授
渡邊 兼人	運輸省航海訓練所研究調査部研究第一課助教授
古田 真敏	運輸省運輸政策局国際業務第二課

中島 啓祐

J I C A 社会開発協力部社会開発協力

第二課職員

・ J I C A トルコ事務所

Ms.Akgun OZCAN

Japan International Cooperation Agency Turkey

Office

8 - 4 ワークショップの結果

3日間にわたって日本側・トルコ側双方の参加の下でPCMワークショップを開催し、トルコ海事セクター（特にイスタンブール海域）の抱える問題を分析し、その問題解決のための方法とプロセスを検討した。

（1）参加者分析

ワークショップでの参加者分析、国際機関・政府機関、海運会社へのインタビューを行い、トルコ海事分野における主要なグループ・組織を明らかにした（参加者分析におけるグループ・組織の概要については表14を参照）。

1）プロジェクトの実施により想定される直接・間接の受益者

- ・ I T U 学部生
- ・ I T U 大学院生
- ・ 船員養成短期大学生
- ・ トルコ船員
- ・ 黒海周辺国の船員
- ・ トルコの海運会社

このうち最も大きな問題を抱えているグループがトルコ船員であり、直接のターゲットグループと想定された。また、安全教育など特定分野ではI T Uの学部や大学院も直接のターゲットグループとなることが予想される。他のグループ・団体は、プロジェクトを実施することによる間接的な裨益者と想定される。

2）想定されるプロジェクトの協力者

- ・ I T U M F 同窓会
- ・ トルコの海運会社
- ・ I M O / U N D P
- ・ Chamber of Shipping
- ・ Turkish Maritime Law Association
- ・ Turkish Maritime Education Foundation
- ・ International Trade Union

- ・ 総理府管轄の特別海事プロジェクト事務所

本プロジェクトについては比較的多くの協力者が見込まれ、協力の内容も直接的なものが多い。資金面では、海運会社、同窓会、海運集会所が資金援助の実績をもつ。また、ITUMFは、1993～1996年のIMO/UNDPプロジェクト実施のための施設建設にあたって、当初のUNDPの拠出金を元に、各方面に施設建設の意義を訴えとともに資金的支援を仰ぎ、最終的に拠出金の数倍の資金を調達した実績がある。

技術面では、IMO/UNDPプロジェクト実施期間中IMO専門家が常駐し、現在もアドバイスを受けるなどの良好な関係を維持している。UNDPからは、ITUMFへの技術移転の技術面での支援の可能性も示唆された。また、技術普及面では、インタビューした海運会社はいずれも船員の再教育の必要性を訴えており、MSTCの訓練内容が更に充実されれば、より積極的にMSTCに船員を送り訓練することが可能である。

2000年達成をめざして総理府管轄の特別海事プロジェクトが実施中で、ボスポラス海峡の通信網の整備が期待されている。本プロジェクトの上位目標達成上重要なプロジェクトである。

3) 潜在的反対者

- ・ 古い船のオーナー

ワークショップにおいて上記カードが出されたが、実際にどの程度、どのような形で反対が予想されるのか不明である。現時点では本分野の活動についての潜在的反対者は特定されていない。

4) プロジェクトの実施機関・意思決定機関

- ・ ITUMF
- ・ Higher Education Council
- ・ Undersecretariate of Maritime Affairs
- ・ STCW Convention and IMO
- ・ JICA

実施機関はITUMFで、同学部内にMSTCとSECがあり、教授スタッフもほとんどがセンターと学部講師を兼務している。

決定機関としては、ITUMFへの予算配分については Higher Education Councilの権限で決定されるが、それ以外のプロジェクト内容については Undersecretariate of Maritime Affairsが管轄機関となる。プロジェクトの活動内容は一部STCW会議の決定を受けて変更、修正される可能性があり、モニタリングが必要となる。

参加者分析結果

ワークショップ（参加者分析）において分類されたプロジェクトにかかわるグループ・組織は表14～表17のとおりである。

表14 プロジェクトの実施により想定される直接・間接の受益者

グループ名	概要・特徴	プロジェクトとの関連	インセンティブ・特記事項
イスタンブール工科大学学部生	全寮制男子学生のみ。多くが地方出身者。入学時の成績はトルコの大学中3位以内に入る。1学年に航海科100名、機関科50名。卒業後は9割以上がトルコ船の船員となっている。外国船の船員は1割程度である。留学生受入枠（定員の1割）がある。	大学の教授・講師が安全訓練センターの講師を兼務しており、講師のレベル向上やカリキュラムの充実が直接的に学生にとって利益となる。	卒業後の就職状況は非常に良く、また高収入が見込まれる。資格取得のための動機づけはある。卒業生の多くが地元国営企業に就職しているが、海外志向が高まっている。
イスタンブール工科大学院生	3年前に開設され、現在10名ほどの院生が在籍している。	大学院では特にボスポラス海峡に特化した安全面に関する研究・調査ニーズがあり、ITUは成果をセンターや学部のコース内容に反映できるような研究を希望している。	研究のための施設が不足している。大学院のカリキュラムはもっと改善する必要がある。
船員養成短期大学生	数年前に設立された2年制の船員養成機関。生徒数、カリキュラム内容、主な就職先等は不明。	ITUの学部長が同短大の学長を兼務しているため、ITUとのつながりが深い。ITUの教授による授業があること、ITUの施設を利用するなど間接的（潜在的）な受益グループである。	未調査
トルコ船員	全国に7万人の船員（Officer:12,500,Ratings:57,500）がいる。1996年には約9,000人がセンターで研修を受けた。	トルコにおける海上事故の8割は人災であり、船員への再教育を提供することが重要である。プロジェクトの直接のターゲットグループである。	船員(Ratings)の82%は初等教育しか受けておらず、専門的な教育・訓練も受けていない。IMOによる資格の国際基準が確立されつつあり、資格取得は船員個々にとって雇用関係上重要なインセンティブとなっている。
黒海周辺国の船員	1996年には黒海周辺国から150名の研修生を受け入れた。	現在トルコを通過する商船の船員はロシアをはじめとする周辺国出身者が増えており、上位目標達成上関連性がある。	IMO協定は国際基準となるため、周辺諸国の船員も資格取得のニーズを感じている。
トルコの海運会社(1) Turkish Maritime Organization Inc.	かつては3万人以上を雇用するトルコにおける最大の国営企業だった。Turkish Cargo Lines等が分かれて規模は縮小し、現在は客船、港湾などを経営し、約5,000人ほどを雇用している。(Seafarers: 3,200 Officers: 1,100) 同社は船員訓練部門をもっている。	ITUには航海シミュレーターがないため水先案内人の訓練には送っていない。日本からの技術協力が入れれば、訓練部門のインストラクターをITUで訓練したい。	
トルコの海運会社(2) Turkish Cargo Lines	同社は国営企業であり、主な株主も国営の企業である。政府が民営化路線を打ち出しており、数年前まで67隻を所有していたが、現在は29隻まで減っている。定期航路として北米、地中海諸国、日本を含む極東をもっている。船員は約1,000名である。	3年前まで船員訓練センターを設けていたが民営化の關係で閉鎖された。同社の訓練ニーズでは特にISMとGMDSSがあげられる。ITUとの関連としては同社の学生の船上訓練の受入をおこなっている。	同社の現在抱えている問題は投資家の確保と船員レベルの向上のための訓練不足である。
トルコの海運会社(3) Coastal Safety and Salvage Administrations	国営企業で昨年設立された。従業員1,000名で200名が灯台、300名が事務系で、500名がタグボートと救済ステーションに勤務している。救済ステーションはダルダナスとボスポラスの2カ所、さらに10ステーションを建設する予定である。	訓練ニーズは沈船引き上げと消火である。	

表15 想定されるプロジェクトの協力者

グループ名	概要・特徴	プロジェクトとの関連	インセンティブ・特記事項
ITUMF Alumni Association ITUMF 同窓会	1949年創立。卒業生3,500人が会員。会報出版。年3回の式典協賛。	資金面での支援	
トルコの海運会社	受益者側参照	資金面での支援、船員訓練	従業員への教育・訓練
IMO/UNDP		Phase IとPhase II (1993-1996)のプロジェクトがITUで実施された。トルコ政府が施設等の投入を行い、IMOの専門家IMO基準に基づきセンターのカリキュラムの向上を図り、ITUが移転内容の定着化(テキストの翻訳、出版等)を担当した(一部UNDP資金投入あり)。現在IMO専門家によるサポートはあるが、プロジェクトそのものは終了している。UNDPの援助の方向は社会開発(環境、貧困対策等)に移行しており、トルコ政府も貧困の問題を基本戦略の一つに位置付けているため、今後新たに海事セクターへの援助は行わない予定である。ただし、センターが周辺諸国を対象とした教育・訓練期間としての機能を発揮する方向性があれば、資金以外の部分では支援できるかもしれない。	Phase Iは失敗、Phase IIは成功プロジェクトと位置づけられている。(成功と評価される理由) ・Phase IIは当初基礎的な3IMOモデル(消火、救命、サバイバル、救命ゴート)の標準化をめざしていたが、最終的には21すべてのコースについて達成した。 ・当初の国内向けプロジェクトから周辺諸国も含む訓練が行われ、想定されている以上の便益効果が見込まれる。
Chamber of Shipping(CS)/Turkish Maritime Education Foundation(TUDEV)	TUDEVはCSの下部組織で、寄宿舎、図書館建設に寄付を行った。海運会社が構成員。	資金面での支援が可能。船員訓練受講の促進	
Turkish Maritime Law Association	50名の構成員による小さな協会。	セミナー、会議等の開催で支援の可能性あり。	
International Trade Union (ITU)	情報なし。	直接の関連なし。	
総理府管轄の特別海事プロジェクト	首相補佐官がリーダーを務める海峡通信強化プロジェクト	上位目標における関連性が高い。外部条件としてモニタリングを行う必要性あり。	

表16 潜在的反对者

グループ名	概要・特徴	プロジェクトとの関連	インセンティブ・特記事項
古い船のオーナー	情報なし。	情報なし。	情報なし。

表17 プロジェクトの実施機関・意思決定機関

グループ名	概要・特徴	プロジェクトとの関連	インセンティブ・特記事項
ITUMF	教授スタッフ 80 名。22 名が非常勤講師。学部内に海事安全訓練センターと船員試験センターを有している。	本プロジェクトの実施機関である。学部の講師とセンターの講師は兼務なので、プロジェクトのカウンターパートも教授スタッフとなる。	海運会社の民営化がすすみ、政府からの予算措置が削減傾向にある。
Turkish Higher Education Council	高等教育を管轄する。学長の指名、学部の新設許可の権限をもつ。	大学学部への予算枠を決定する。	
Prime Ministry Undersecretariate of Maritime Affairs	海事全般について管轄する。将来的には海事省が設立される予定である。	ITUMFの直接の責任管轄省庁である。資格試験実施をITUMFへ委託している。	
STCW Convention and IMO	IMO/UNDPの項目参照	IMO/UNDPの項目参照	IMO/UNDPの項目参照

(2) 問題分析

問題分析における中心問題は『ほとんどの海上事故は人災である』ことで、その主因は、①求められる安全業務遂行の知識・技術が不足している船員の存在、②通信ミス、③船員のアルコール・ドラッグに対する危険性の認識不足、④船員の労働条件が悪いこと、があげられた（問題系図は図3を参照）。

①『求められる安全業務遂行の知識・技術不足』の主原因としては、以下の3点が指摘された。

- ・設備に関する船上・地上訓練が不十分、訓練用設備も足りず、船についての最新の知識も不足していることから、船員が船の設備を熟知していないこと。
- ・船員に再教育の機会がなく、外国の船員もトルコ特有の海事状況を把握しておらず、水先案内人やVTSも訓練が不足していることから、トルコ海域を航海する船員が海事関連法規や規制についての理解が不十分であること。
- ・学外から講師を集めることは困難で、学内での研究活動も不十分なため、十分な専門性を有したインストラクターが配置できないこと。

②『通信ミス』の主な内容は、ship-to-ship, on-board, ship-to-companyで、主原因は、英語能力の不足、通信機器の不備、海事用語の理解不足、他国籍船員との意思疎通が不慣れなことがあげられた。

③『船員のアルコール・ドラッグに対する危険性の認識不足』も人災を引き起こす重要な間接要因であると指摘された。認識不足は、こうした問題についての特別な対応（教育）が行われていないことに起因している。

④『船員の低労働条件』の原因としては、船主がSTCWで定められた労働条件を遵守していないことや、船のメンテナンスが悪いことが船員の居住環境を悪化させている（振動、騒音等）ケースがあげられた。

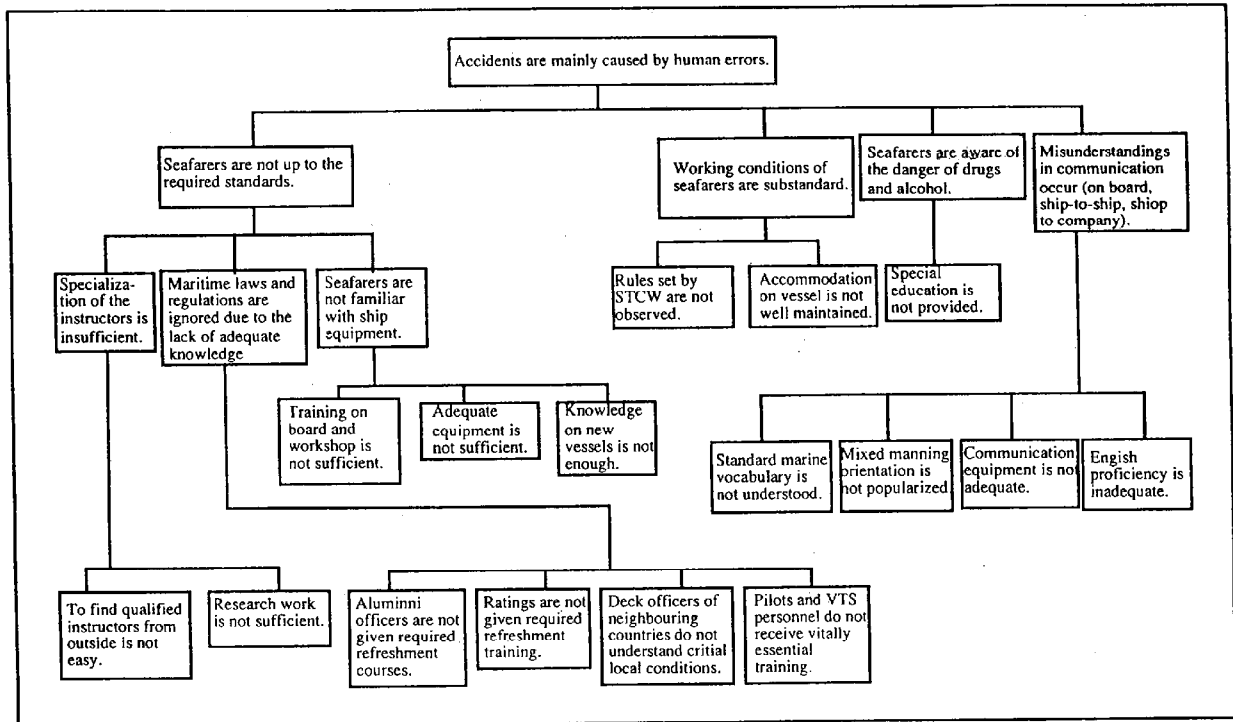


図3 問題系図

(3) 目的分析

当該セクターにおける最終的な目的は、『トルコ海域における人災が最小限に抑えられる』ことであり、そのためには、①船員が国際基準に従って業務を遂行する、②通信ミスが最小限に抑えられる、③船員がアルコール・ドラッグの危険性を認識する、④STCW会議の取極めに準拠した労働条件が守られる一状況が達成されなければならない（目的系図は図4を参照）。

①『船員が国際基準に従って業務を遂行する』ためには、以下の状況が達成される必要がある。

- ・十分な専門性を有する講師がインストラクターを務める。

- ・船員が航海上の危険・重要項目について十分な基礎知識をもつ。
- ・訓練用設備を用いて訓練を積んだインストラクターがトレーニングを行う。
- ・訓練カリキュラムが充実される。
- ・最新の研究成果が再訓練にフィードバックされる。

②『通信ミスが最小限に抑えられる』ためには、以下が達成されなければならない。

- ・船員の英語理解力が向上する。
- ・通信設備が改善される。
- ・船員が他国籍船員とのチームワークに慣れる。
- ・船員が航海用語を理解する。

③『船員がアルコール・ドラッグの危険性を認識する』ためには、アルコール・ドラッグの危険性についての特別教育を受ける必要がある。

④『STCW会議の取極めに準拠した労働条件が守られる』ためには、特にILO147/STCW会議の取極めが遵守され、船上生活における住環境が快適に保たれる必要がある。

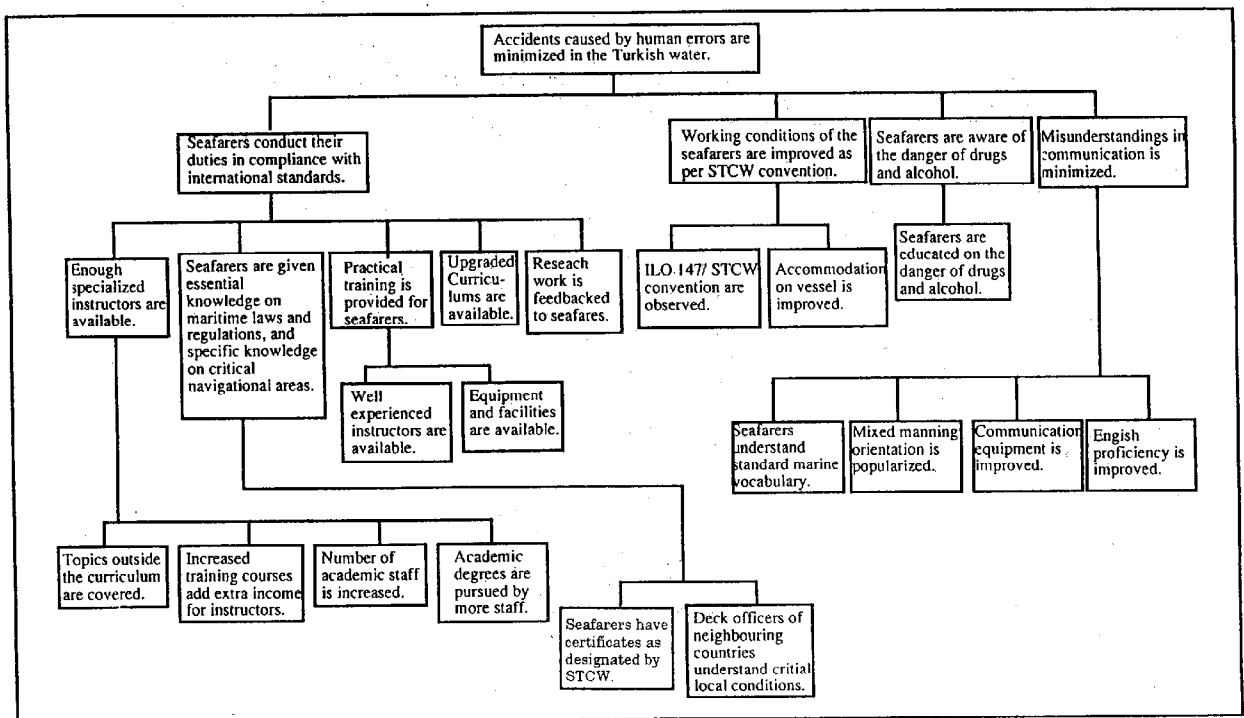


図4 目的系図

(4) アプローチの選定

I TUMFが実施するという立場から検討された優先順に、目的系図から7つのアプローチが特定された（アプローチの特定は図5を参照）。

- ①船員への理論的・実践的トレーニングアプローチ
- ②船員教育者の育成アプローチ
- ③通信改善アプローチ
- ④カリキュラム改善アプローチ
- ⑤研究活動アプローチ
- ⑥特別社会教育アプローチ
- ⑦労働条件改善アプローチ

ワークショップにおける合意として、特に①～⑤を技術協力の候補として今後検討していくこととなった。

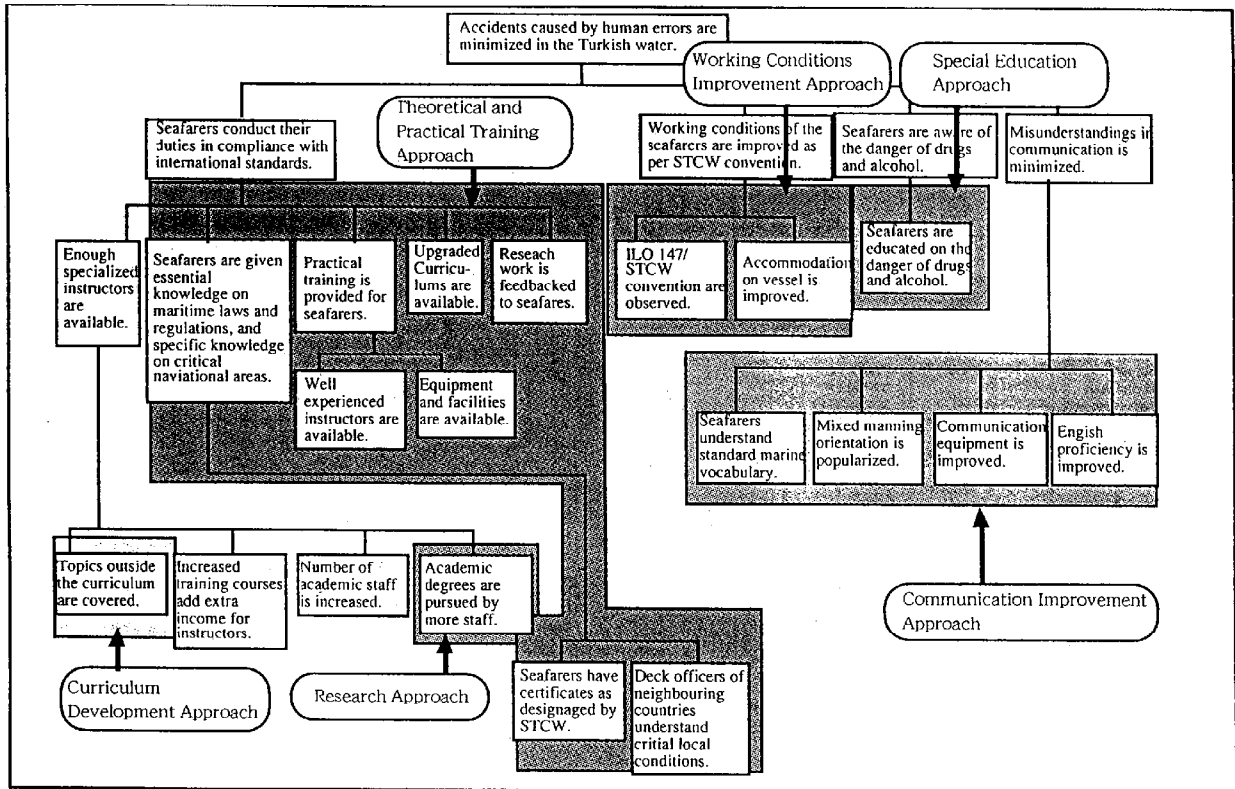


図5 アプローチの特定

8-5 ワークショップに対する評価

ワークショップ終了後、参加者に対するアンケートを実施した（結果は図6を参照）。回答者はトルコ側6名、日本側4名で、今回のワークショップで用いたPCM手法の理解度とプロジェ

クト立案におけるPCMの有効性について質問した。手法の理解については、ほぼ全員が理解できたと回答しており、全員が問題解決のための手法としてPCMを積極的に評価した。また、PCMのプロジェクト立案への利用についても全員が好意的に評価している。特に参加者全員で合意形成が図れるという本手法のメリットについての評価が多かった。

一方、改善すべき点として以下が指摘されている。

参加者の理解度の違いによって手法の有効性が左右される。

セクター全体という議論の枠が大きすぎ、詳細を分析するための時間が不足した。

今回参加者が実施機関からのみの参加で、議論が広がっていかない。

今後の対策として、については、事前にテキストやプレゼンテーションの内容を送付すべきであったと思われる。また、ワークショップにおけるモデレータの説明用には（参加者がより興味をもって参加できるように）該当セクターを例に用いるべきであったと思われる。については、系図で全体像は把握できたが、2、3段目の枝の広がりについては時間が十分とれなかった。問題系図、目的系図については今後とも詳細内容を改善していく必要があると思われる。については、様々な視点からの意見を取り入れて議論を深めていくために、船員（労働組合など）、船主（海運会社）、他の援助機関など多様な立場からの参加が望まれる。今回は、ワークショップの前後に海運会社や他の援助機関へインタビューを行ったが、ワークショップへ彼らの意見を反映させるという点では不十分であった。

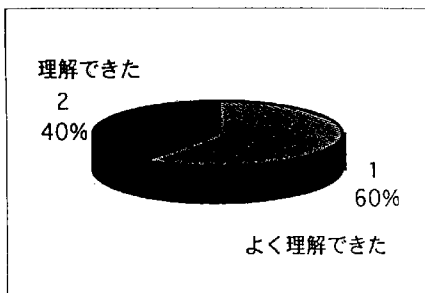
8 - 6 今後の提案・教訓

- (1) セクターの問題を把握し、問題の重要性を分析するためには広くセクターの構成員をワークショップに参加させることがプロジェクトの内容をよくするうえで重要である。特に受益者代表の参加は不可欠である。

- (2) ワークショップの内容を深めていくために参加者が一定の手法理解レベルにある必要があり、事前に相手側に手法の説明テキスト（できれば現地の言語で作成）を配布することが望ましい。

PCM参加者アンケート結果

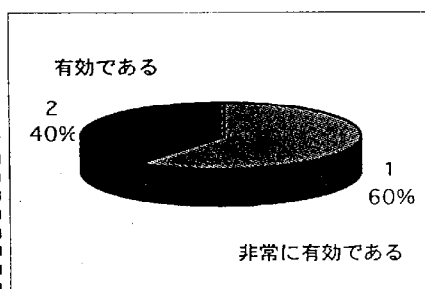
1. PCMへの理解度



回答者数：10名

よく理解できた。	6名
だいたい理解できた。	4名
ある程度理解できた。	0名
あまり理解できなかった。	0名
理解できなかった。	0名

2-1. プロジェクト立案におけるPCMの有効性



回答者数：10名

非常に有効である。	5名
有効である。	4名
ある程度有効である。	0名
あまり有効でない。	0名
有効ではない。	0名
ノーコメント。	1名

2-2. 有効であると回答した理由

- ・問題の特定とその解決策をみつけることができる。
- ・手法そのものは有効である。ただし、有効性は参加者の手法理解度による。
- ・手法の説明が明確であったため有効であった。
- ・客観的であるため。
- ・こうしたワークショップに参加したのははじめてだが問題の特定と解決方法をみつめることができた。
- ・一見単純と思われる問題も明確に指摘でき、参加者すべての認識を一致させることができる。
- ・その分野を含む広い範囲の意見から得られた系図は、いろいろな解決に応用できる。
- ・客観性がある。問題を細分化していくことで、解決方法の発見を容易にする。
- ・まったく初めての手法であったが、プロジェクトとそれを取りまく状況について明確に理解することができた。

3. コメント、提案、質問等

- ・もう少し問題の詳細について論議する時間が必要だった。問題の全体像が大きすぎる。
- ・以下の2点でワークショップは意義があった。
 - 1) 参加者全員が論理的にプロジェクトの考え方を整理することができた。
 - 2) 学部のスタッフがプロジェクトの重要事項について理解を深めることの助けとなった。
 今回のこの機会は学部のレベル向上の上でよいインパクトを与えた。
- ・問題の分析と解決策の策定のために有用であった。ワークショップは成功だった。
- ・非常に興味を引かれた。プロジェクトの実施のためのよい道筋を得た。
- ・ワークショップの時間は短すぎた。
- ・問題提起及び解析の際、参加者の考え方のベースが同様であると、固まった一つの方向しか出せないことが起こる。多様にわたる分野からの意見が必要と考える。
- ・個人の主体性のある意見から客観的な結論が得られる。
- ・問題がどこにあるのか分析する上で参加者全員の共通認識のもとにすすめる手法は有効であると思う。
- ・ある方向に問題をもっていく可能性がまったくないのか疑問に思った。
- ・ワークショップの時間が短すぎた。特に、なじみのない参加者にとっては当初とまどいがあった。ワークショップに先だてて手法の説明に時間を十分割くべきだ。
- ・率直に言っははじめのうちはゲームをやっているようだったが、ワークショップの終わりになって、自分たちが効率的かつ実践的にプロジェクトの形成を行っていることに気づいた。非常に効率的なシステムであると思う。

図6 アンケート結果

9 . 相手国との協議結果

9 - 1 UMA (面談者 : HATIP海軍局長)

UMAは海運部門の独立機関で、当国の海運部門の重要性にかんがみ、近く海運省として首相府から離れ昇格する計画もあり、陸運を管轄する運輸省(港湾も担当)と並び注目される機関である。同局長は「ITUMFはUMAの委託等により一般船員の安全訓練を実施しているのみでなく、海員資格の試験・認定を行う国の唯一の機関であり、日本政府が本協力を実現することは喜ばしい」と述べた。本庁はプロジェクト方式技術協力実施上の上級官庁ともいえることから、今後の支援を求めるとともに今回のITUMFとのミニッツについてのウイットネスサインを要請した。同局長は本要請を受け、4月21日のイスタンブール、ツツラでの署名に参加することになった。

9 - 2 SPO (面談者 : SUREL日本担当課長)

本プロジェクトの政策的確認を求めたところ、海事関係訓練は海運振興が当国の重要開発目標であることから、トッププライオリティーであると述べた。ただし、大学の上級組織は行政上は大学審議会であり、予算などもこの審議会で決定されること(教育省は初・中等教育のみ管轄)、しかし各大学の協力事業は通例大学から直接SPOに申請があり、今回の要請もこのケースで特に審議会で議論されているものではないとのことであった。のちにITUMFにおいて確認したところ、大学は教育、事業について独立性が強く、ITUMFにおける各種協力事業(例:UNDPとのプロジェクト)も大学とSPOで協議・実施してきたとのことであった。調査団は今回、時間的に大学審議会に面会することが困難であることから、ITUMFからミニッツを審議会に説明するとともに、JICA事務所も同審議会関係者にしかるべく説明するよう依頼することとした。

9 - 3 その他

今回の協議の直接の関係者ではないが、ITUMF学部長のアレンジでERKAYA首相補佐官兼IMO代表部トルコ大使(元海軍総司令官で海事関係では閣僚以上の権限を有する)と協議した。代表部事務所はイスタンブールにあり、外務省の分室としても機能している。ここではボスボラス海峡をめぐる政策的な「特別プロジェクト」を担当しており、このプロジェクトのなかには安全航行システムのためのステーションづくりが含まれていて(ITUMFからも参加)、日本の協力が始まれば、本分野における日本の高度な海峡航行システムについてもぜひ参考にさせてもらいたいと、首相府としての期待を表明した。

10．プロジェクトの基本計画

本調査は事前調査ではあるが、要請内容が不明であり、かつ情報がほとんどなかったことにより、まず先方の意欲とニーズの確認を優先させたため、収集した資料を十分に検討したうえで、先方の要請した協力分野を論証し、プロジェクトの基本計画を策定する余裕がなかった。現時点で想定し得る協力の内容としては以下のようなものがあげられるが、プロジェクトの基本計画については、再度調査団を派遣し、改めてトルコ側と検討する必要がある。

(1) ITUMFに対する協力

ITUMFカリキュラムはIMOモデルコース7.03に従って組み立てられていることから、その内容については問題ないと思われる。

ただし、トルコ側が希望している操船シミュレータが導入された場合、条約に定める能力基準を網羅する訓練シナリオの作成についての助言を与えることは可能である。また、条約上既に強制化されたレーダ・ARPAシミュレータ訓練が実施されているが、同訓練シナリオについても同様である。ただし、このシナリオについては、学部学生（初級レベル）が対象であることを考慮する必要がある。

< 次回調査実施時の留意点 >

- ・ 供与機材は、ニーズ、訓練内容、使用状況、整備状況を熟慮のうえ、選考されるのが妥当。
- ・ ITUMFのリサーチについて、研究部門等の拡充は当プロジェクト方式技術協力の目的から船員教育の分野と研究機関の分野とを明確に分離し、協力内容を策定することが望ましい。
- ・ VTSシミュレータを用いてのボスポラス海峡の航行管制に関する分野は、船員教育とは異なると考える。

(2) MSTCに対する協力

MSTCの位置づけは、条約改正により強制化された安全訓練の再教育を行う場と想定できる。現在14コースが開設され、更に増設計画もあることから、増設コースの訓練内容について助言を与えることは可能である。

< 次回調査実施時の留意点 >

- ・ 機材供与は、ニーズ、訓練の内容、使用状況、整備状況を熟慮のうえ、選考されるのが妥当。

(3) 乗船訓練に対する協力

社船に乗船して行っている乗船訓練の記録として I T U M F で作成した訓練記録簿があるが、この内容は I M O モデルコースを引用したものである。訓練記録簿は訓練生の能力を証明するものであることから、項目のみの引用ではなく、能力基準を含め評価をしなければならない。この訓練項目の構成と評価基準、方法等について助言を与えることは可能である。

< 次回調査実施時の留意点 >

- ・老朽化（船齢43）した練習船を所有しているが、当該練習船を使用した訓練を実施するため教官の増員を希望しているということである。しかし、あまりもの老朽船であることから、今後のメンテナンス、運航経費を十分に考慮する必要がある。
- ・現在の I T U M F の学生数と訓練内容、訓練実数等を想定すると、これほどの大型船は必要なく、今後のランニングコストを考慮すれば例えば500トンクラスの練習船に置き換えることも可能かと推察できる。
- ・練習船を用いた訓練を行うこととなれば訓練内容の策定について助言できよう。

11．協力実施にあたっての留意事項

- (1) 協力内容の機材供与と技術移転を考慮した場合、次回の調査において協力実施内容を十分検討し絞り込みを行ったうえ、供与機材を決定する（仕様概要を含む）。
- (2) 機材は初期の段階で投入するのが望ましく、それによって訓練シナリオの策定にも十分検討を加えることができる。
- (3) 機材を用いた訓練シナリオの策定は初期（開始後1年間）に少なくともドラフトを作成し、これを用いて訓練を行った結果を、その後の改訂に反映させる。
- (4) 隣国船員を対象とした第三国研修が視野にあるのであれば、その国々の船員教育事情も調査の対象になると思われる。

12 . 提言

協議は終始極めて熱心に行われ、トルコ側の意欲をうかがわせるものであったが、日本の技術協力にどう期待するかは技術的分析は明確に説明し得なかった。これは極めて貧弱な設備と老朽船であってもトルコ唯一の上級船員を養成できる大学として一応機能していることと、UNDPの援助によって、まがりなりにも船員のSTCWスタンダード再訓練コースが2コース開始され、船会社から送り込まれる訓練生によって活況を呈していることにもよると思われる。しかしながら教官は、日進月歩の海運技術の発展と今後のSTCW95スタンダードの進行計画のなかでITUMFの教育課程と新規開設予定の船員再訓練コースの運営に不安を抱いていることから、これらに対する日本人専門家の助言・指導を求めており、加えて現在準備し始めている研究コース(大学院)についても当面日本からの専門家派遣を強く希望していた。

ITUMFは新興学部としてはSAG学部長の努力によって良く運営されており、国からの予算に限界はあるものの、業界の支援と期待が強い。またトルコ政府が当学部も参加させたボスポラス海峡を中心とする安全航行対策を重視しているところから、プロジェクト方式技術協力によって支援することは妥当と考えられる。

ただし、今次調査は事前調査ではあるが、要請内容が不明であり、かつ情報がほとんどなかったことにより、まず先方の意欲とニーズの確認を優先させたため、収集した資料を十分に検討したうえで、先方の要請した協力分野を論証する余裕がなかった。このため、1998年中にも長期調査を行い、ITUMFのカリキュラム改善の計画、今後予定されるSTCWスタンダードに見合ったMSTCのコース開設計画、必要な機材の確定と優先順位づけ及び先方の設置計画について確定する必要がある。

また、ITUMFの活動が当初からトルコの政策により、国内研修や第三国研修を視野に入れて実施されてきたことから、我が国の協力の方向もプロジェクト方式技術協力の前半に機材などの日本側インプットを集中的に行い、後半にはJICAの「第二国研修」「第三国研修」とを併せて行うことを検討する方が効果的であると思料する。

なお、トルコ側は、かつて個別専門家の対応に苦慮した経験から、長期専門家についてはキャプテンレベルではなく、日本の大学等において教師経験を有し、かつしばしば当学部で実施される周辺国セミナー等にも十分対応できる英語の能力を有することを求めてきた。学部長のこの要請は極めて真摯なものであり、かつC/Pとして予定される教官の水準を考えると当然と判断されることから、日本側として十分に尊重されるべきであると考えられる。

付 属 資 料

資料 1 ミニッツ

資料 2 対処方針と調査結果

資料 3 I T U M F 準備資料

資料 4 クエスチヨネアー

資料 5 クエスチヨネアー回答

資料 6 海事関係法令

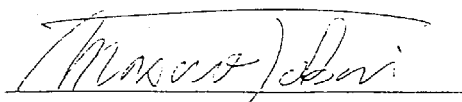
THE MINUTES OF MEETING
BETWEEN
THE JAPANESE PRELIMINARY STUDY TEAM
AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE REPUBLIC OF TURKEY
ON
THE JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT ON THE IMPROVEMENT OF MERCHANT MARITIME TRAINING AND
EDUCATIONAL CAPACITIES IN TURKEY

The Japanese Preliminary Study Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (JICA), headed by Mr. Masao Takai, visited the Republic of Turkey from April 11 to April 23, 1998 for the purpose of clarifying the outline and background of the request of the Project on the Improvement of the Merchant Maritime Training and Educational Capacities in Turkey (hereinafter referred to as "the Project").

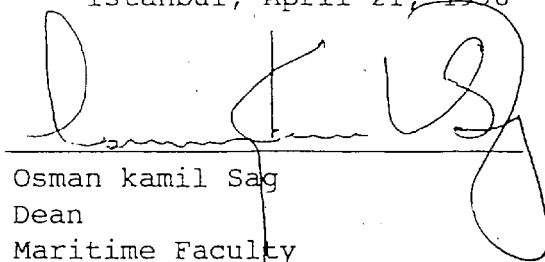
During the stay in the Republic of Turkey, the Team visited the Project site, exchanged views and had a series of meetings with the Turkish authorities concerned.

As a result of the discussions, the Team and the Turkish authorities concerned agreed to report to their respective Governments the matters referred to in the document attached.

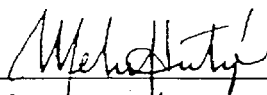
Istanbul, April 21, 1998



Masao Takai
Leader
Preliminary Study Team
Japan International
Cooperation Agency
Japan



Osman Kamil Sag
Dean
Maritime Faculty
Istanbul Technical University
Republic of Turkey



Mehmet Hatip
General Director
Maritime Transportation
Prime Ministry
Undersecretariat for
Maritime Affairs
Republic of Turkey

THE ATTACHED DOCUMENT

The Japanese Preliminary Study Team (hereinafter referred as "Team") and Turkish authorities exchanged views and had a series of discussions about the outline of the Project on the Improvement of the Merchant Maritime Training and Educational Capacities in Turkey (hereinafter referred to as "the Project").

Prior to the discussions, the Team explained the scheme of the Japanese project-type technical cooperation (ANNEX I). Then, the both sides agreed to establish the framework of the Project in compliance with the scheme.

1. Implementing organization of the Project

The Team confirmed that the Maritime faculty of the Istanbul Technical University (hereinafter referred as "ITUMF") as the implementing organization of the Project (ANNEX II). It was also confirmed that the Maritime Safety Training Center (hereinafter referred as "MSTC") and the Seafarers Examination Center (SEC) should be included with the Project.

2. Objective of the Project

(1) The Overall Goal

The overall goal of the Project is to minimize accidents caused by human errors on the Turkish water. This also aims at reducing accidents caused by Turkish vessels outside Turkey.

(2) The Purpose of the Project

The Project will aim to upgrade ITUMF's educational capacities and the training courses of the MSTC.

3. Outline of the Project

(1) The Title of the Project

The title of the Project is the Improvement of the Merchant Maritime Training and Educational Capacities in Turkey.

(2) The Project Site

The Project site shall be located at ITUMF in Tuzla, Istanbul.

(3) Duration of the Project

The duration of the Project shall be five(5) years.

4. Inputs to the project by the Japanese side

(1) Dispatch of Four (4) Long-term experts

Coordinator

Expert on Deck

Expert on Engine

Expert on VTS

One expert will be assigned to the responsibility of the Chief Advisor of the Project and act as the Project Manager for the Japanese side.

(2) Dispatch of Short-term experts

Short-term experts will be dispatched in accordance with the

m-j *lyt* *ojs*

needs for the effective implementation of the Project.

(3) Training of Counterpart personnel in Japan

Counterpart personnel will be trained in Japan in accordance with the Plan of Operations (PO). The number of trainees and training periods shall be determined on annual basis based on the discussions by the both sides.

(4) Provision of Equipment

The equipment requested in the priority order by the Turkish side are as follows:

- 1) Ship handling Simulator
- 2) Vessel Traffic Services Simulator
- 3) Engine room Simulator
- 4) Cargo Handling Simulator
- 5) Other equipment to achieve the project purpose

The Team and the Turkish side discussed the provision of equipment according to the Turkish side's request. As a result, the Team and the Turkish side agreed that 1) and 2) are indispensable to achieve the project purpose. Yet, the Team suggested to the Turkish side to give the 5) priority rather than to the 3). The both sides agreed to continue the discussion to finalize the list of the equipment to be procured within the budget to be allocated for the Project.

5. Inputs to the project by the Turkish side

(1) Assignments of Counterpart personnel and Administrative personnel

The Turkish side will provide full-time Turkish counterpart personnel at least one(1) per Japanese expert. Also, the Turkish side will provide secretaries, typists and other administrative personnel necessary for the implementation of the Project as listed in ANNEX I.

(2) Buildings and Facilities

The Turkish side will prepare necessary buildings and facilities for the implementation of the Project. It will also provide offices and other necessary facilities for the Japanese experts as listed in ANNEX I.

(3) Budget Allocation

The Turkish side will ensure all running expenses necessary for the implementation of the project as listed in ANNEX I.

6. Framework of the Project

The both sides had a three-day workshop to establish a project framework (ANNEX III). After the participation analysis, problems analysis, objectives analysis, they clarified the areas of cooperation and approaches to achieve the project goal.

M. J. Jyoti *008*

It was agreed by the both sides that the following approaches are necessary to achieve the overall goal.

- 1) Theoretical and practical training approach
- 2) Instructor training approach
- 3) Curriculum development approach
- 4) Improving research capacity approach
- 5) Communication improvement approach
- 6) Special education for seafarers approach
- 7) Improving seafarers' working conditions approach

Among these approaches, it was agreed by the both sides that the area of cooperation will mainly include the 1), 2), 3) and 4) to achieve the project goal. Also, some activities for the 5) and 6) will be covered within the framework of the Project. It is understood by the both sides that the 7) should be taken and carried out by other organizations concerned to fully achieve the overall goal.

7. Schedule

The Team and Turkish side recognized that more discussion is necessary in order to formulate a detailed PO. The Team suggested to dispatch a long-term study team to formulate a Project Design Matrix (PDM) and functional PO for each approach, as well as clarify the detailed terms of reference for the Japanese experts and their Turkish Counterparts.

ANNEX I Project type Technical Cooperation

ANNEX II Organization Chart of the Maritime faculty of Istanbul
Technical University

ANNEX III Result of the Work shop

ANNEX IV Attendance List

M. T. Aytekin

Project Type Technical Cooperation

1. Project Type Technical Cooperation

Project Type Technical Cooperation is one form of the technical cooperation projects which JICA implements. To achieve a particular project goal in which the development of human resources takes a leading part, project type technical cooperation flexibly links three forms of cooperation; experts dispatch, trainees acceptance, and equipment supply. These three then function as one cooperative project, implemented for a certain period of time. The project includes the survey for project planning, implementation, and evaluation, and aims to introduce Japanese techniques. Generally, it will be operated for about five years in cooperation with recipient countries. After the expert term has expired, the project will be handed over to the recipient country.

The techniques and know-how which are necessary to carry out the project are supplied by the Japanese experts who work in cooperation with local counterparts. For an effective transfer, the experts and their counterparts must build a mutual understanding and appreciation of each other's culture and society, and establish a clear concept of fitting the transferred techniques into the recipient country's conditions.

The cooperation not only includes technical development, training, and each technical guidance for popularizing techniques, but also includes institution building in the recipient country. This is necessary for the country to administer the project after the Japanese involvement is phased out, allowing the new techniques to take a firm hold in the country in a sustainable manner.

2. Implementation Setup for the Project Activity

The project is based on the Japanese expert and counterpart who is the immediate target of the technology transfer. The Japanese side dispatches experts (for long term contracts, or short term contracts on demand), and the recipient country provides at least one local counterpart per Japanese expert.

A local project manager is assigned and is responsible for the practical operation of the project. The manager works in close cooperation with the leader of the Japanese experts. As well, a project joint committee is established as a decision making body to operate and administer the project.

3. Details of the Cooperation

(1) Dispatching Japanese experts

Several experts on long term contracts form a team under a leader, and give guidance to the local counterparts. Also, experts are dispatched for short terms when necessary.



(2) Trainees reception

Reception of the trainees is designed for the counterparts to visit Japan and receive training necessary for implementing the project and improving their skills, in a related Japanese organization. This training is not only aimed at improving their individual skills, but at improving their understanding of the system which supports the project.

(3) Equipment supply

This applies to the equipment which are necessary for the implementation of the project and are used by the Japanese experts, and are especially difficult for the recipient country to set up and maintain on its own. The recipient country is responsible for maintaining the equipment supplied by the Japanese side.

4. Conditions for the Project Type Technical Cooperation

To run the project smoothly and produce satisfactory results, it is a premise that all the necessary issues are fully identified and investigated; a careful preparatory survey, acquisition and analysis of the necessary information for implementing the project, knowing the purpose of the project, means and method for the achievement, and grasping foreseeable obstacle factors, etc. Therefore, the Preliminary Study Team that JICA dispatches prior to the project implementation must confirm and discuss the following issues with its local implementing agency and counterpart organization.

(1) Recipient country's national development plan and needs for the project

It must be confirmed that the sector which the project is targeting is important for and in line with the recipient country's national development plan.

(2) The condition of the sector which the project is targeting

As much information as possible which is related to the targeted sector must be collected in order for the preliminary study team to grasp the current conditions of the sector.

(3) Problems to be tackled in the recipient country/organization

All issues and problems in the recipient country/organization to be tackled through project implementation must be clearly identified.

(4) Solutions for the problems

Means to solve problems in the recipient country/organization must be discussed.

(5) The implementation setup of the project

Confirm the following; the state of buildings, institutions, and facilities where the project is taking place; the presence of the human resources (such as the counterparts) who will learn the techniques and the availability of the necessary funds for running the project.

M.J. Light *2008*

(6) Examining the outline of the project

After checking (1) to (5) above, set the project goal based on the information, and examine the activities and outputs necessary to achieve the project goal.

(7) Confirming the sustainability of the project

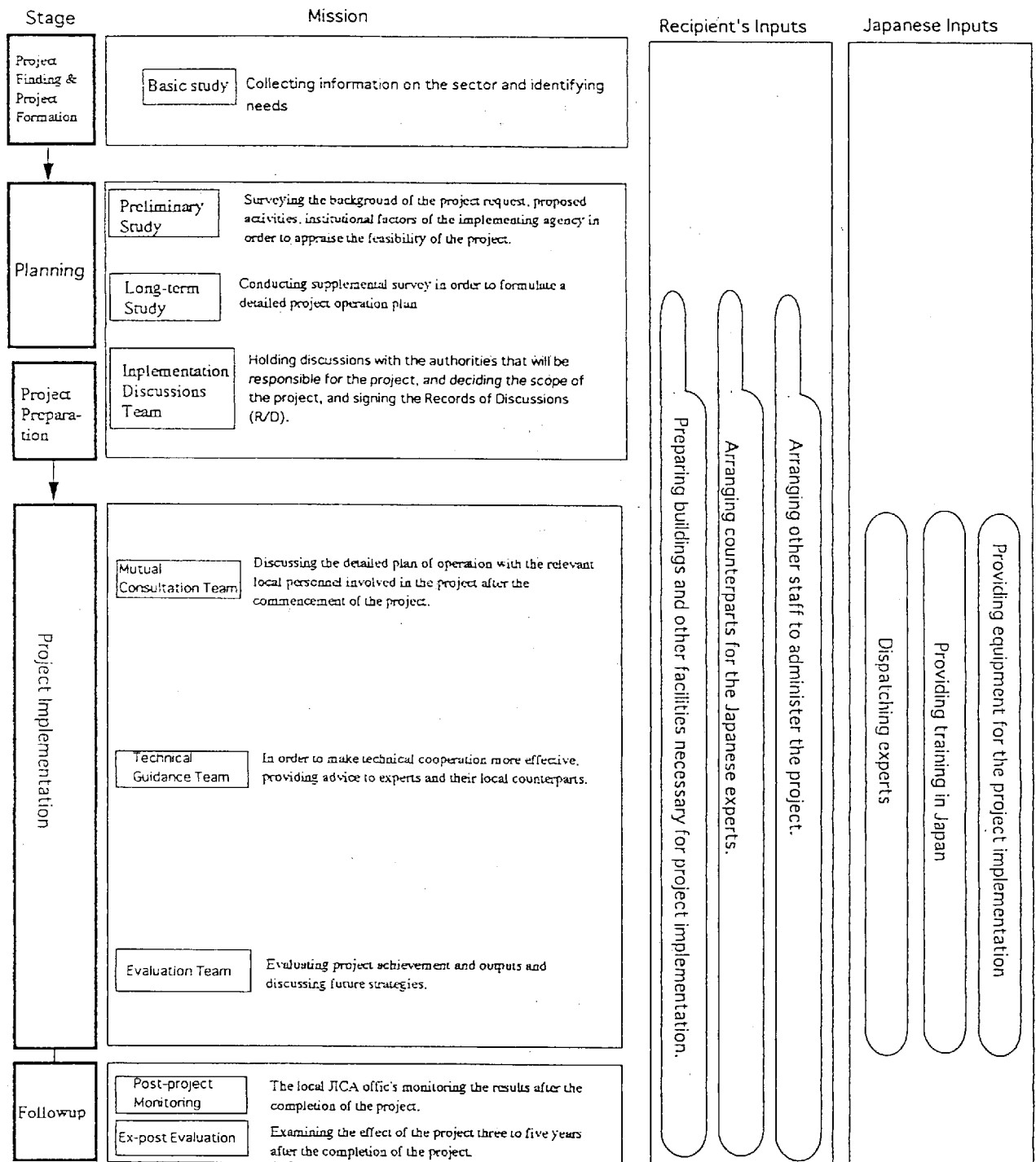
Since the sustainability of the project is most crucial, measures to ensure this must be confirmed. The means for transferred techniques to be maintained and put to practical use; the means to get necessary funds to run the organization on which the project is based, and the means for the counterparts to continue to work for the project must be discussed.

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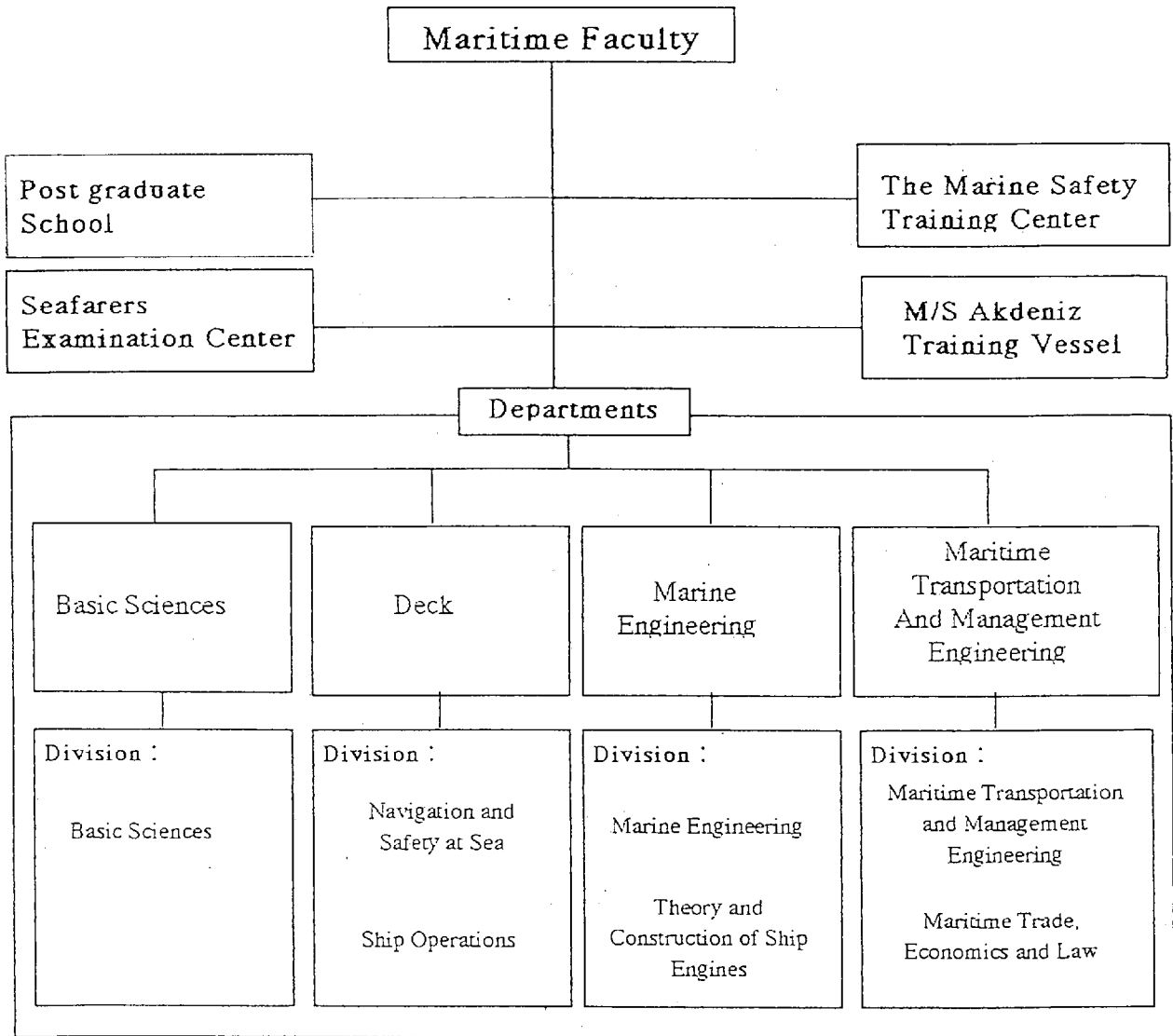
5. Inputs and responsibilities

Stages	Responsibilities		Recipient	Japanese Side	
Preparation Stage	Construction and maintenance of buildings, institutions, and facilities where the project is taking place		●		
	Ensuring the presence of the human resources (such as the counterparts) who receive the technology transfer		●		
	Ensuring the necessary funds for running the project		●		
Implementation	Implementation Setup	Maintenance and administration of buildings, institutions, and facilities	●		
		Arrangement of the counterpart and the office staff	●		
		Budgeting for the project operation	●		
	Experts	Dispatching Japanese experts			●
		Privileges, exemptions, and assistance for the Japanese experts and their families, that are equivalent to those provided to experts from third party countries or international organizations		●	
		Residences for the Japanese experts		●	
		Domestic travel expenses for the Japanese expert's official duties		●	
	Training	Trainees reception			●
		Assistance for the trainees so that they can put their technical training to practical use		●	
	Equipment	Equipment supply			●
		Procurement of machinery, equipment, appliances, vehicles, tools, supplementary parts, and other materials, that are not supplied by JICA		●	
		Funds for domestic transportation, installation, operation, and maintenance of the supplied equipment		●	
		Funds for customs duties, national tax, and other surcharges that are levied on the supplied equipment in Turkey		●	
	Others	Efforts to encourage Turkish people to understand the project, to promote their support for the project		●	
	Post Implementation	Maintenance and administration of the buildings, the institutions, and the facilities		●	
Continuous acquisition of funds to run the supplied equipment		●			
Continuous arrangement of the counterparts		●			

M. J. Mustafa

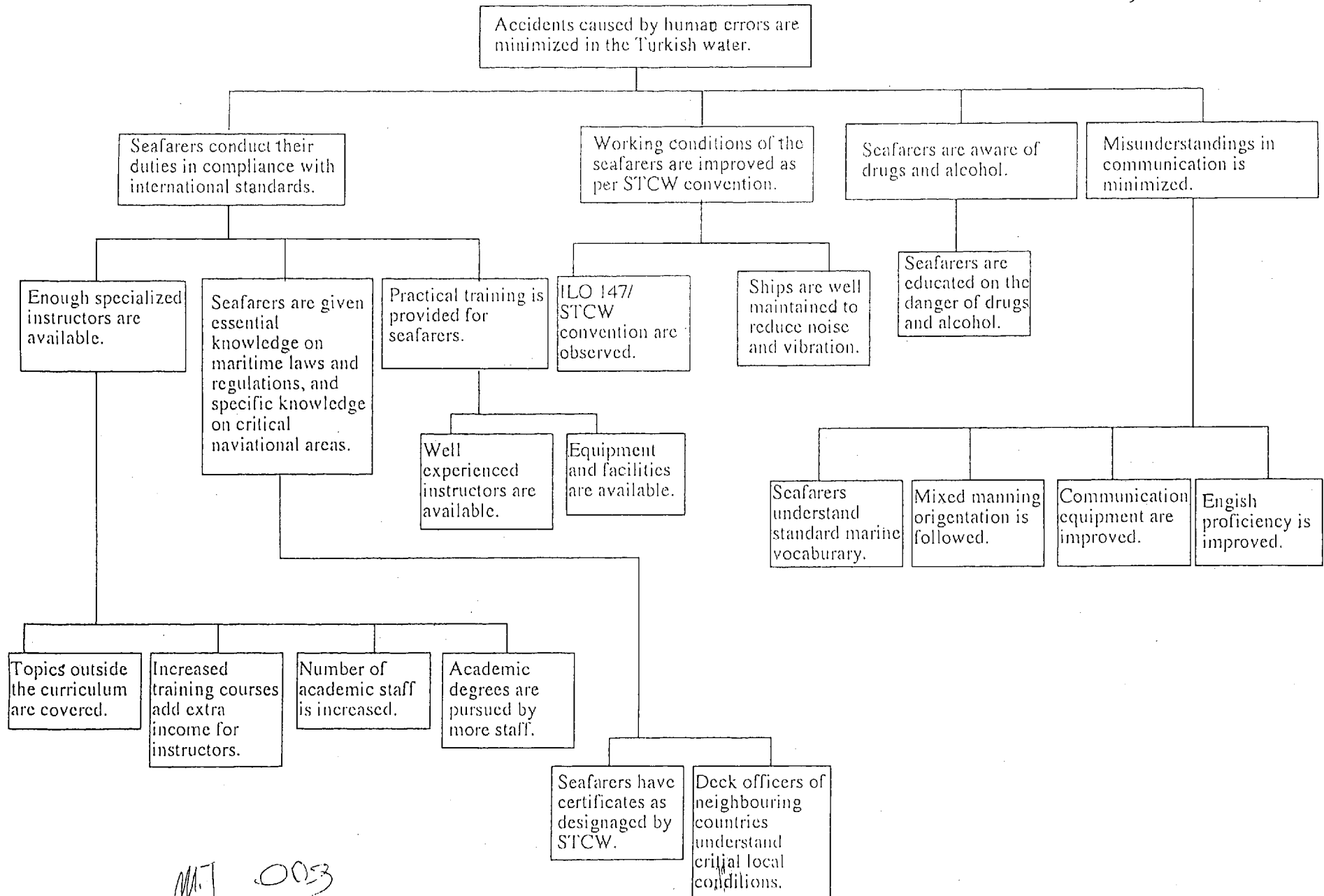


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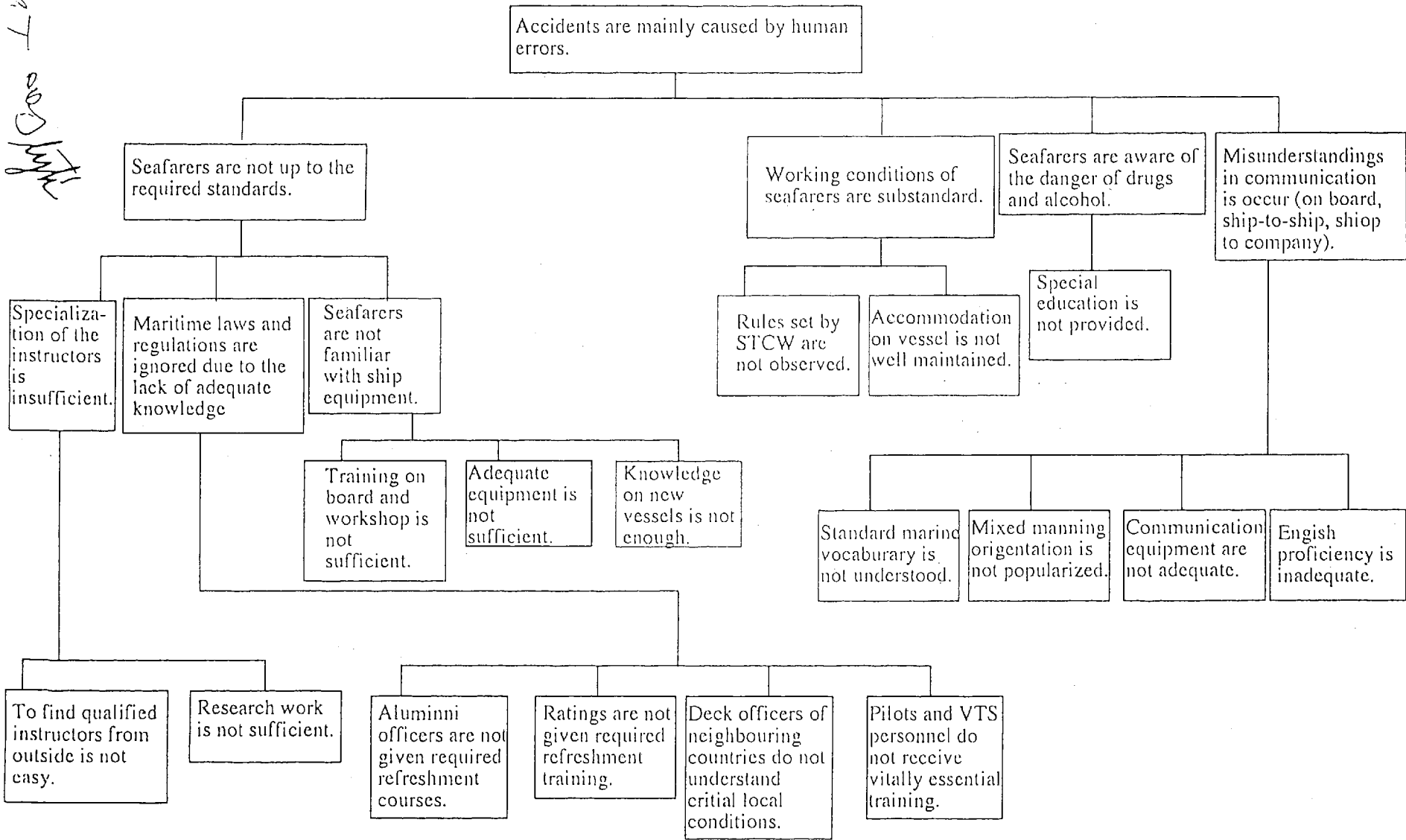
Objectives Tree



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ANNEX III Problems Tree

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Good
night*



Attendance ListTurkish Side

Dr.Osman Kamil SAG	Dean of ITUMF Professor of Marine Engineering Department National Project Coordinator of MSTC Director of SEC
Dr.Sureyya ONEY	Vice Dean of ITUMF Professor of Navigation Department Head of Navigation Department
Dr.Ahmet BAYULKEN	Vice Dean of ITUMF Professor of Marine Engineering Department
Dr.Sezer ILGIN	Head of Maritime Law, Trade, Economy Division Associate Professor of Marine Engineering Department
Dr.Demir SINDEL	Vice National Project Coordinator of MSTC Associate Professor of Navigation Department and MSTC
Captain.Teoman AKIN	Head of Ship Operations Division Senior Lecturer of Navigation Department
Captain.Nusret BELIRDI	Director of ARPA/Radar Lab. Senior Lecturer of Navigation Department
Captain.Ozkan POYRAZ	Director of GMDSS Lab. Research Assistant of Navigation Department
Chief Engineer Cengiz DENIZ	Research Assistant of Marine Engineering Department
Captain.B Sitki USTAOGU	Research Assistant of Navigation Department
Mr.Hisashi Yamamoto	Senior Lecturer
Mr.Nuzhet BILGIN	Ship Surveyor, Directory of District Istanbul, Maritime Undersecretariat

Japanese Side

Mr.Masao TAKAI	Leader, Director of Second Technical Cooperation Division, Social Development Cooperation Department, Japan International Cooperation Agency
Mr.Norihiko OZEKI	Seamens Education (Marine Engineering) Professor of Engineering Department, Marine Technical College, Ministry of Transportation
Mr.Kanehito WATANABE	Seamens Education (Marine Navigation) Assistant Professor of Curriculum Planning Division, Research and Investigation Bureau, Institute for Sea Training, Ministry of Transportation
Mr.Masatoshi FURUTA	Maritime and Sailors Administration Second International Affairs Division, Transport Policy Bureau, Ministry of Transportation

ads *M. J. Kuznetsov*

Mr.Kaneyasu IDA

Participatory Development
Researcher, Consulting Department, IC NET
Limited

Mr.Keisuke NAKASHIMA

Cooperation Planning
Second Technical Cooperation Division, Social
Development Cooperation Department,
Japan International Cooperation Agency

Ms.Akgun OZCAN

Japan International Cooperation Agency Turkey
Office

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トルコ海事教育改良・振興プロジェクト

(The Improvement and the Promotion of the International Merchant Maritime Training in Turkey)

事前調査対処方針及び調査結果

平成10年5月27日

社会開発協力部

社会開発協力第二課

調査・協議事項	現状または問題点	対処方針・調査内容	結果
調査の基本方針	<p><背景> 本調査団派遣に際しては、トルコ側の要請書のみではトルコ海運の現状、プロジェクトと国家開発計画との関連、実施体制、プロジェクトの目標・活動内容等の情報が不明であったため、事前に質問書を作成しJICA事務所を通じて回答を求めていた。しかしながら、それに対してはカントリーレポートの送付を受けたのみであり、現時点でも明確な情報は得られていない。かつ、調査に先立ちイスタンブール工科大学海事学部へ派遣されていた個別専門家の帰国報告を受けたところ、本プロジェクトはプロ技協を実施する前提ともなるべき「専門家活動及び機材設置場所の確保」「カウンターパートの配置」「ローカルコストの確保」等が整っているとは言い難い状況であった。従って、本調査団は内容的には基礎調査団レベルの情報収集を行うとともに、可能な限り事前調査レベルの調査を行うこととし、プロ技協実施可能性については改めて調査結果を受けて検討することとする。調査団の基本方針としては以下のとおりで、トルコ海運状況の調査を行うと共に、トルコ側とプロジェクト方式技術協力の内容について協議を行い、プロジェクト実施可能性について検討することを目的とする。</p> <p><基本方針> (1)要請の背景、内容を確認し、国家開発計画における位置付けを明確にする。 (2)海運政策、海運の現況と将来予測、海事教育制度・内容を確認する。 (3)PCMワークショップを開催しプロジェクト協力の範囲内容を検討する。 (4)プロジェクトの実施体制を確認するとともに、日本側の協力可能性につき調査する。</p>		
I-概要 1.事前調査団員の構成(案) 2.調査期間(案) 3.事前調査の目的		I 1.団員構成 ア. 団長・総括 (JICA) イ. 海運/船員行政 (運輸省) ウ. 船員教育(航海) (運輸省) エ. 船員教育(機関) (運輸省) オ. 参加型計画 (コンサルタント) カ. 協力企画 (JICA) 2.平成10年4月10日から4月24日まで約2週間(日程は別添参照) 3.本プロジェクトの協力内容について、情報収集、トルコ側との協議を行い、技術協力の可能性の検討を行う。	ア.高井正夫(団長) イ.古田真敏(海運/船員行政) ウ.渡邊兼人(船員教育(航海)) エ.尾関紀彦(船員教育(機関)) オ.井田光泰(参加型計画) カ.中島啓祐(協力企画)

調査・協議事項	現状または問題点	対処方針・調査内容	結果
<p>II-調査事項 1.プロジェクトの要請背景</p> <p>(1)現行国家開発計画における本セクターの位置付け</p> <p>(2)トルコ共和国の海運政策</p> <p>(3)海運・船員関係行政機構</p> <p>(4)海運状況 a.船腹保有状況、海上輸送量等 b.船員需要と将来予測 c.港湾等施設</p>	<p>II 1.</p> <p>(1)現行国家開発計画は別紙の通り。当該分野の国家開発計画における位置づけについては、明確にされていない。</p> <p>(2)不明</p> <p>(3)関連する省庁として、海事庁 (Undersecretariat of Maritime)、運輸省 (Ministry of Transportation) があるが、これらとイスタンブール工科大学海事学部 (ITUMF) の関係は不明。また、イスタンブール工科大学 (ITU) は文部省が関係していると思われるが、詳細は不明。</p> <p>(4) a.別紙参照 b.不明 c.15の主要公共港、30の小規模地方港、35の特別民間港があり、運輸省鉄道・港湾・空港建設総局(DLH)が管轄している。これらの港湾は旧式化しているが、取扱貨物量は増大傾向にあるため、改良が急がれている。</p>	<p>II 1.トルコ海事行政担当機関に下記事項について確認する。</p> <p>(1)現行第7次開発計画を確認するとともに、同開発計画における海運分野の位置付けを確認する。</p> <p>(2)トルコ共和国における海運政策について、確認する。</p> <p>(3)ITUMFを管轄する省庁及び海運・船員関係の行政機構について確認する。</p> <p>(4) a.船腹保有状況、海上輸送量等につき最新データを入手する。 b.現在の船員需要と将来の需要予測の最新データを入手する。 c.主要港湾及びその施設 (係船能力、支援施設等) につき確認する。</p>	<p>1.</p> <p>(1)第7次開発計画の中では海事分野についての言及はなされていない。国家企画庁・海事庁での説明によれば、海事分野トルコ国の最重要セクターであり、かつ海運振興が最重要開発目標となっていること、またこれが国家開発計画における諸目標達成の大きな要素になっており、海事訓練関係をターゲットにした本プロジェクトはトッププライオリティーとして考えている旨説明された。</p> <p>(2)海事庁に確認中。</p> <p>(3)大学の上級組織は行政上は大学審議会であり、予算などもこの審議会で決定される (教育省は初・中等教育のみ管轄)。ただし、各大学に対する各種協力事業は通例大学から直接国家企画庁に申請があり、本要請もこのケースで特に審議会で議論されているものではないとのことであった。一方、海事庁 (Undersecretariat of Maritime Affairs) は、海運・船員行政から安全航行管理まで海に関する幅広い業務を管轄している機関である。STCW条約に準拠した船員資格の発行も同庁が担当しており、従ってITUMFでのカリキュラムの内容については海事庁が適宜指導しているとのこと。また、海事庁は海事資格証明及び海技免状の試験実施機関としての業務をITUMFに委託しており、両機関は強い結びつきを持っている (ITUMFは海技試験を実施している唯一の機関)。</p> <p>(4) a~dのデータについては、海事庁・ITUMFにおいて確認した。詳細内容については、別紙参照。</p>

調査・協議事項	現状または問題点	対処方針・調査内容	結果
<p>d.海運業界</p> <p>(5)船員教育・訓練ニーズ</p> <p>(6)海技資格制度 a.管轄官庁、海技資格制度の内容 b.海技免状の種類等 c.海技資格の現状</p>	<p>d.不明</p> <p>(5)トルコ人船員数は約7万人であり、その内訳はオフィサー12,500人、船員57,500人となっている。全体の82%を占めている船員は、殆どが一般の初等教育を受けているのみで、海事安全・一般海事に関する教育は不十分であると報告されている。</p> <p>(6)不明</p>	<p>d.トルコ国における海運会社の数、規模、雇用者数（船員数）等について調査する。</p> <p>(5)船員教育、特にトルコ側の要請であるオフィサー教育・訓練及び船員の再訓練についてそのニーズを確認する。</p> <p>(6)海技資格制度 a.管轄官庁、海技資格制度の内容につき確認する。 b.海技免状の種類や資格別適用船舶、海域等について確認する。 c.受験者・合格者、資格保有状況について確認する。</p>	<p>(5)</p> <p>(6) a～cについては詳細確認中。</p>

調査・協議事項	現状または問題点	対処方針・調査内容	結果
<p>2.実施体制 (1)実施機関及び主管組織、関係機関 a.実施機関</p> <p>b.主管組織</p> <p>c.関係機関</p>	<p>2. (1) a.実施機関 ・イスタンブール工科大学 海事学部 Istanbul Technical University, Maritime faculty (ITUMF) ・海事安全訓練センター Marine Safety Training Center of Turkiye(MSTC)</p> <p>b.主管組織 ・イスタンブール工科大学 Istanbul Technical University</p> <p>c.関係機関 ・海事庁(Undersecretariat of Maritime) ・運輸省(Ministry of Transportation) ・国家企画庁(Undersecretariat of State Planning Organization)</p>	<p>2. (1) a.ITUMFは5年間の船員教育を実施する機関であり、MSTCは船員の再訓練を実施する機関である。この2つの関係はまだ不明であるので、調査する必要がある。</p> <p>b.本プロジェクトの主管及び予算権を持つ組織について確認する。</p> <p>c.本プロジェクトに関連した機関として、海事庁、運輸省、国家企画庁があると報告されているが、それらとITUMFとの関係は明確ではない。各機関の組織・機構図を入手し、その役割分担等の関係を確認する。</p>	<p>(1) a.ITUMFはイスタンブール工科大学の1学部であり、高校卒業者を対象にした航海科と機関科のオフィサーを養成している。また実務者を対象にした再訓練を行っている海事安全訓練センターと船員資格に係る試験の実施、資格の付与を行う船員試験センター(Seafarers Examination Center)が併設されている。これらは、ITUMFの内部組織と言うべきもので、独立機関ではなく、教官なども兼任して配置されている。</p> <p>b.大学の上級組織は行政上は大学審議会であり、予算などもこの審議会で決定される。一方、トルコ国の海運・船員行政から安全航行管理まで海に関する幅広い業務を管轄している海事庁も関係機関として考えることが出来る(TUMFでのカリキュラムの内容についての指導、海事資格証明及び海技免状の試験実施業務の委託、等)</p> <p>c.本プロジェクトの関係機関としては、国家企画庁、大学審議会、海事庁があげられる。</p>

調査・協議事項	現状または問題点	対処方針・調査内容	結果
<p>(2)イスタンブール工科大学海事学部 a.概要</p> <p>b.教官・学生</p>	<p>(2)</p> <p>a.イスタンブール工科大学は3つのキャンパスを有し、11の学部と1研究所(原子力研究所)及び1学院(トルコ音楽学院)から成っている(学部については詳細不明)。 海事学部はITUの1学部であり、旧市街から45km程離れたツツラキャンパスにある。同学部には4学科が開設されており、海事安全訓練センターが併設されている。1978年官報公布によりUnder Secretary of Marine Affairの委託を受けIMO基準による教育、STCWに関わる船員の再訓練、免状の交付、Degree附与を実施している。近年黒海経済協力機構(BSEC)からの生徒受け入れも計画している。</p> <p>* 学科：航海科(Deck) 機関科(Engine) 海運-管理科(Marine Transportation-Administration) 基礎科学科(Basic Science)</p> <p>b.教官：1996年の状況は常勤80名、非常勤22名と報告されている。個別専門家の報告によると「教官は給料が安いので副業を持っており、Full timeではなく、自分の講座だけに出勤する。故にカウンターパートとしての対応はできない。学部長はプロジェクトが始まったら人を雇うと発言していた」とのこと。 学生：1996年の状況は全学生数が693人と報告されている。</p>	<p>(2)</p> <p>a.ITU及びITUMFのトルコ国内での位置づけ、規模等について確認する。</p> <p>b.教官名簿等入手し、各教官の役職、専門性、担当分野の専任・兼任等を確認する。また、通常の勤務時間・状況を確認する。 各学科・学年毎の人数を確認する。</p> <p>c.</p>	<p>(2)</p> <p>a.TUMFはイスタンブール工科大学の1学部であり、イスタンブール郊外ツツラ地区の約67,000㎡の敷地を有している。その中には49の建物が含まれ、その総面積は12500㎡になる。教官数は約80名で、高校卒業者を対象にした航海科と機関科が開設されており、定員は1学年150名(航海100名、機関50名)。また、実務者を対象にした再訓練を行っている海事安全訓練センター(The Maritime Safety Training Center)と船員資格に係る試験の実施、資格の付与を行う船員試験センター(Seafarers Examination Center)が併設されている(海技試験を実施している唯一の機関である)。</p> <p>b.教官・学生に関する詳細情報は、ITUMFにてとりまとめの上、後日送付される予定である。</p>

調査・協議事項	現状または問題点	対処方針・調査内容	結果
<p>c.教育制度（就学年数、入学）</p> <p>d.卒業後の進路（取得資格、進路）</p> <p>(3)海事安全訓練センター a.概要</p>	<p>c.イスタンブール工科大学海事学部は4年制。ただし、必要に応じて英語の専門教育を1年付加する。</p> <p>d.不明</p> <p>(3) a.ITUMFの1組織であり、1993～1996年にUNDP/IMO指導・援助により設立された。訓練機関は1週間程度で年間を通じ、200日ほど実施されている。就業船員に対するIMO基準に基づいた再訓練を実施し、修了者には国家資格を賦与している。</p>	<p>c.</p> <p>d.ITUMF卒業生がどのような資格を得て、どこに就職しているかを確認する。</p> <p>(3) a.海事安全訓練センターの位置づけ、運営方法等につき確認する。</p>	<p>c.学部別キリムは、3年間でIMO 7.03 PLUSに従った座学課程を2年間、乗船実習を1年間行う（1年及び2年時それぞれ2.5ヶ月、3年時7ヶ月）。この3年間の知識、技能、履歴をもって船員試験センターの行う海技試験の受験資格を有することになる。この資格レベルはW/O(外航船の2等航海士、日本の3級海技士レベル)であり、この試験の可否に関わらず4年の課程に進学できる（合格率約90%）。海技試験は年間2回(2月、9月)行われる。4年時はIMO 7.01 PLUSに従った座学課程を1年間履修し、卒業となる（学士号を取得）。卒業後船舶職員として1年間の乗船勤務を経てC/O(外航船の1等航海士、日本の2級海技士レベル)の海技試験受験資格を取得する。C/O免許を取得後さらに3年間の乗船勤務を経るとMASTER(外航船の船長、日本の1級海技士レベル)海技試験受験資格を取得する。</p> <p>d.詳細情報は、ITUMFにてとりまとめの上、後日送付される予定。</p> <p>(3) a.海事安全訓練センターはITUMFの中に位置づけられる機関である。UNDP/IMO指導・援助により設立され、実務者を対象にした再訓練を実施している。開設を計画しているコースは24コースであるが、これまで実施したものは14コース（実施を予定しているものの中で、必要な機材が設置されておらず、どのように訓練を実施するのか疑問を感じるものもある）。年間平均25～26コース(重複あり)実施されている。MSTCの開設案内に従って各地より参加応募があり、適当な人数(コース毎に設定、10～20名)の応募が集まると実施することとなる。1コースは15日前後で実施され、訓練を実習した証明書をもってそれぞれのライセンス担当局に申請することで自動的に必要な証明書が発行される。ただし、GMDSS取扱い証明書については、当コースの受講に関わらず郵政省の行う試験(筆記、口述)に合格しなければ得られない。</p>

調査・協議事項	現状または問題点	対処方針・調査内容	結果
b.教官・研修生	b.教官：教官はITUMF教官が兼務している。 研修生：不明	b.教官名簿等入手し、各教官の役職、専門性、担当分野の専任・兼任等を確認する。また、通常の勤務時間・状況を確認する。	b.ITUMFの教官が訓練の監督に当たっている。従って、ある部分においては学部教官の学部での講義日程により、MSTCでの開設コースが左右されることがある。現場において訓練を直接指導する教官は、そのほとんどが学部で承認された教官(助手レベル)である。
c.研修制度	c.詳細不明	c.開設コース、コース期間、修了時取得資格、受講料金、研修者数等について調査する。	現在のところ、開設されているコースの数では教官数は十分であるということであるが、実施するコースが増加すれば当然のことながら教官の増員も必要と思料される
(4)予算措置	(4)1996年度の年間予算総額は114,000,000,000TL(約1億1400万円)。ただし、個別専門家の報告によれば「トルコ側予算は非常に厳しい。例えば、執務室に電話線を引くことを依頼したが、お金がないから出来ないと言われた」とのこと。	(4)年間総額の内訳を確認するとともに、プロジェクトの設置、運営に係る相手国負担のローカルコストについて予算を確認する。	c.コース概要については上記aのとおり、これまでの研修者等については後日報告されることになっている。MSTCで行われる訓練の受講費用は学部でまかなわれ、遠隔地船員であって学内宿泊施設を利用する者はその生活費の一部を自己負担することとなる。
(5)施設・設備・機材 a.ITUMF	(5) a.イスタンブール工科大学海事学部の施設・設備・機材不明。	(5)ITUMF及び海事安全訓練センターの建物・施設について、既存のものと今後の設置計画についてその種類、形態、使用目的、規模、内部施設、付帯施設などを調査する。	(4)詳細情報は、ITUMFにてとりまとめの上、後日送付される予定。 (5)a～bについては別紙参照

調査・協議事項	現状・問題点／トルコ側要請内容	対処方針	結果
<p>b.海事安全訓練センター</p> <p>3. PCMワークショップ</p> <p>4. 技術協力計画 (1)プロジェクト名称</p> <p>(2)技術協力目標</p>	<p>b.海事安全訓練センターの施設・設備・機材詳細不明。1993年から1996年までの期間実施されたUNDP/IMOの援助によって次の施設・設備が整備されたと報告されている。</p> <p>a)Olympic Indoors Training Survival/Swimming Pool b)Closed Survival Craft Platform c)防火訓練センター d)応急教育センター e)MSTC管理棟 f)ARPA-RADERシミュレータ実験室 g)GMDSS実験室 h)海事図書館 i)船員用ゲストハウス j)外国人訪問者のための宿泊設備 k)midibus (2台)、minibus (1台)</p> <p>3.</p> <p>4.</p> <p>(1)トルコ海事教育改良・促進プロジェクト(仮) The Improvement and the Promotion of the International Merchant Maritime Training in Turkiye</p> <p>(2)各種シミュレータの整備、及びその設置、操作、保守・管理に係る技術移転を実施し、総合訓練センターを設立する。</p>	<p>3.PCMワークショップを開催し、問題分析・目的分析を行い、プロジェクト協力の対象、目標等につき検討する（トルコ側が報告しているとおり、STCW条約をクリアする授業内容を有しているのであれば、何が技術協力の目的になるかについて確認する必要がある）。</p> <p>4.ワークショップ結果をふまえ、協力範囲、方法、形態等の概要を検討する。</p> <p>(1)</p> <p>(2)要請背景を確認した上で、それに基づいた上位目標・プロジェクト目標を再度協議・検討する。</p>	<p>3.三日間のワークショップを開催し、参加者分析、問題分析、目的分析、プロジェクトの選択を行った。プロジェクトの上位目標は人為的ミスによる事故が減少すること及びトルコ商船による事故が減少することであり、そのためにITUMFの学部教育の向上と、海事安全訓練センターで実施される訓練コースの向上をプロジェクト目標とすることに双方合意した。プロジェクトの詳細活動計画については、次回の課題にすることとした。</p> <p>(1)トルコ海事教育・訓練改善計画 The Project on the Improvement of the Merchant Maritime Training and Educational Capacities in Turkey</p> <p>(2)ITUMFの学部教育の向上と、海事安全訓練センターで実施される訓練コースの向上を目標とすることに双方合意したが、詳細活動計画については今後の検討課題である。</p>

調査・協議事項	トルコ側要請内容	対処方針・調査内容	結果
<p>(3)協力期間</p> <p>(4)技術協力内容 a.日本人専門家の派遣</p> <p>b.研修員の受け入れ</p>	<p>(3)5年間（トルコ側はフェーズ2を考えており、その中の目玉として練習船の供与を要請している）</p> <p>(4) a.日本人専門家の派遣 ・長期専門家：航海(Deck) 機関(Engine) 無線操作(Radio Operations) コンピュータエンジニア (Computer Engineer) 電子工学技術者(Electronics Technician) ・短期専門家：期待する業務は以下の通り。 ・プロジェクトの運営 ・カウンターパート、その他スタッフの訓練 ・Factory Acceptance Tests ・据え付け ・Site Acceptance Tests ・操作の安全管理 ・保守 ・Optimised System Utilisation ・Positive Recruitment and Personnel Motivation ・Direct Access to Supplier's Design Review Board ・Regular System Upgrades</p> <p>b.年間3名×5年間で計15名のカウンターパートが、日本においてプロジェクトと類似のシミュレータに関する研修を受ける。</p>	<p>(3)プロジェクト概要をふまえた上で、協力期間について検討する。</p> <p>(4) a. ・プロジェクト概要をふまえた上で、長期専門家についてトルコ側の要請を具体的にすると共に、日本側の対応可能性について検討する（無線操作、コンピュータエンジニア、電子工学技術者等の派遣がプロジェクトの内容に対応するのか、また日本側の派遣対応が可能なのか検討する必要がある）。</p> <p>b.研修の内容について、トルコ側の要請を確認し、その実施可能性について検討する。</p>	<p>(3)暫定的に5年間で合意している。</p> <p>(4) a～c.日本側の投入としては、4名程度の長期専門家（航海、機関、VTS、調整員、リーダーは専門分野を兼ねる）の派遣と年間2～3名程度のカウンターパート研修の受け入れを行い、操船シミュレータを中心とした機材の供与とすることで双方合意した。ただし、詳細については、今後検討が必要であるため、今年度長期調査を実施し検討することとした。</p>

調査・協議事項	現状または問題点	対処方針・調査内容	結果
<p>c.機材供与</p>	<p>c.以下シミュレータを希望している。予想価格及び仕様については表1のとおり。</p> <ul style="list-style-type: none"> ・操船シミュレータ ・エンジンルームシミュレータ ・船舶信号システムシミュレータ ・荷役実習シミュレータ ・Oil Spill Management Trainer ・バラストコントロールシミュレータ ・オイル・ガス・プロセスシミュレータ ・ターミナルパワープラント 	<p>c.プロジェクトの内容(技術移転の内容)をふまえた上で、機材の必要性及び維持管理に係る予算・体制等について確認し、内容を検討する。また、現有機材との関係(更新or新規購入)を明らかにする。</p>	<p>c.トルコ側の希望は以下の通り。1)2)についてはプロジェクト活動に関し必要不可欠であることを双方理解したが、それ以外の部分については、今後プロジェクトの詳細計画を策定した上で検討することとした(現時点で、日本側は3)は訓練ニーズ及び予算の面を勘案し、リストから削除することを提案している)</p> <ol style="list-style-type: none"> 1)Ship handling Simulator 2)Vessel Traffic Services Simulator 3)Engine room Simulator 4)Cargo Handling Simulator 5)Other equipment to achieve the project purpose
<p>5.第三国(国際機関を含む)の協力概要</p> <p>(1)本プロジェクトに対する他の援助機関のかかわり</p>	<p>5.</p> <p>(1)1993年から1996年までの3年間、UNDP/IMOの援助により、トルコ海事安全訓練センタープロジェクトが実施された。このプロジェクトはSTCW条約78/95に基づくカリキュラムを導入し、教育体系の改善をはかるとともに、各種訓練・教育施設の整備をおこなうものであった。</p>	<p>5.</p> <p>(1)協力内容及び今後の協力方針等について調査する。</p>	<p>5.</p> <p>(1)UNDPのプロジェクトでは一部の施設整備と専門家によるカリキュラム改善のための指導を行い、トルコ国における成功プロジェクトの一つとして評価されている。現在UNDPの援助は社会開発分野(環境、貧困対策等)に移行しており、今後新たに海事セクターへの援助は予定されていない。しかしながら、ITUMFが地域を対象とした教育・訓練機関としての機能を発揮する方向性があれば、資金以外の部分では支援できるかもしれないということが示唆された。</p>
<p>6.協力可能性の検討</p>		<p>6.調査結果をもとに日本側の協力可能性について検討する。</p>	



THE **VISIT** OF
**JAPAN INTERNATIONAL COOPERATION
AGENCY
(JICA)**

TO THE
**MARITIME FACULTY
ISTANBUL TECHNICAL UNIVERSITY
(ITUMF)**

+
MARINE SAFETY TRAINING CENTER OF TURKEY
+
SEAFARERS EXAMINATION CENTER OF TURKEY

FOR
**THE IMPROVEMENT AND THE PROMOTION
OF THE
MERCHANT MARITIME TRAINING IN TURKEY**

HOSTED BY
PROF.DR. OSMAN K. SAĞ
DEAN-ITUMF / NPC-MSTC / DIRECTOR-SEC

14 - 21 APRIL, 1998
TUZLA - ISTANBUL
TURKEY

JICA DELEGATION

**VISITING
ITUMF**

- | | |
|--|--|
| 1. Leader | Mr. Masao TAKAI
Director, Second Cooperation Division
Social Development Cooperation
Department
(JICA) |
| 2. Maritime Education
(Engine Dept.) | Prof. Norihiko OZEKI
Maritime University
Ministry of Transportation (MOT) |
| 3. Maritime Education
(Navigation Dept.) | Assist. Prof. Kanehito WATANABE
Maritime Training Center
Ministry of Transportation (MOT) |
| 4. Marine Transportation
Policy | Mr. Masatoshi FURUTA
Official, Bureau of Transportation
Policy
Ministry of Transportation (MOT) |
| 5. Participatory Planning | Mr. Kaneyasu IDA
(IC NET) |
| 6. Cooperation Planning | Mr. Keisuke NAKASHIMA
Staff, Second Cooperation Division
Social Development Cooperation
Department
(JICA) |
| 7. Liasion Officer | Ms. Akgün ÖZCAN
JICA - ANKARA |

**ITUMF DELEGETION
HOSTING THE
JICA DELEGATION**

- | | |
|--------------------------------|--|
| 1. DEAN | Prof.Dr. Osman Kâmil SAĞ
National Project Coordinator / MSTC
Director / SEC
Head / Marine Engineering Department |
| 2. VICE DEAN | Prof.Dr. Süreyya ÖNEY
Head / Navigation Department |
| 3. VICE DEAN | Prof.Dr. Ahmet BAYÜLKEN
Marine Engineering Department |
| 4. Division Head | Assoc.Prof.Dr. Sezer ILGIN
Navigation Department
Maritime Law, Trade, Economy Division |
| 5. Vice NPC / MSTC | Assoc.Prof.Dr. Demir SİNDEL
Navigation Department
Marine Safety Training Center |
| 6. Division Head | Captain Teoman AKIN
Senior Lecturer /Navigation Department
Ship Operations Division |
| 7. ARPA/RADAR Lab.
Director | Captain Nusret BELİRDİ
Senior Lecturer /Navigation Department |
| 8. GMDSS Lab.
Director | Captain Özkan POYRAZ
Research Assistant / Navigation
Department |
| 9. Marine Eng'g.
Dept. | Chief Engineer Cengiz DENİZ
Research Assistant / Marine Eng'g.
Dept. |

PRIME MINISTRY OF TURKEY.
UNDERSECRETARIAT FOR MARITIME AFFAIRS
will be represented through out the
Workshop Discussions.

APRIL 14, 1998 (TUESDAY)

- 15.00 JICA MISSION ARRIVES AT ITUMF CAMPUS
- 15.30 WELCOME MEETING (DEAN'S OFFICE)
- 16.00 DEAN'S BRIEFING (CONFERENCE HALL)
- 17.00 TEA / COFFEE BREAK
- 17.30 CONFIRMATION OF SCHEDULE
DISCUSSION OF PROGRAM
DETAILS OF ARRANGEMENTS
(DEAN'S OFFICE)
- 18.00 END OF THE DAY - MISSION DEPARTS
FROM CAMPUS

APRIL 18, 1998 (SATURDAY)

09.30 JICA TEAM MEETING (1)

11.00 TOUR OF THE CITY OF ISTANBUL /
SHOPPING AT CLOSED BAZAAR (1)

MINI BUS BY ITU (IF REQUIRED)

GUIDES - MR & MRS YAMAMOTO
SENIOR YEAR CADETS

BASICALLY, FREE DAY (1)

APRIL 19, 1998 (SUNDAY)

09.30 JICA TEAM MEETING (2)

11.00 TOUR OF THE CITY OF ISTANBUL (2)

MINI BUS BY ITU (IF REQUIRED)

GUIDES - MR & MRS YAMAMOTO
SENIOR YEAR CADETS

BASICALLY, FREE DAY (2)

APRIL 20, 1998 (MONDAY)

09.30 DISCUSSION OF M/M (1) (BRIEFING HALL)

11.00 TEA / COFFEE BREAK

11.15 DISCUSSION OF M/M (2) (BRIEFING HALL)

13.00 LUNCH - (ITUMF CADET CAFETERIA)

14.30 CLOSED SURVIVAL CRAFT PRESENTATION (3)
(SURVIVAL CRAFT PLATFORM)

16.00 TEA / COFFEE BREAK

16.15 ARPA RADAR / GMDSS PRESENTATION (4)

18.00 END OF THE DAY - MISSION DEPARTS
FROM CAMPUS.

* HOSTS FOR THE DAY WILL BE VICE DEANS
PROF.DR. SÜREYYA ÖNEY AND PROF.DR. AHMET
BAYÜLKEN

APRIL 21, 1998 (TUESDAY)

- 09.30 CONCLUDING DISCUSSIONS
(BRIEFING HALL)
- 11.00 VISIT TO "M/S AKDENİZ" TRAINING VESSEL
- 11.30 SIGNING OF M/M (M/S AKDENİZ)
- 12.00 "SAYONARA" (GOOD-BYE) COCKTAIL
(M/S AKDENİZ)
- 14.00 MISSION LEAVES CAMPUS



**THE ITU, MARITIME FACULTY AND THE
MERCHANT MARITIME EDUCATION IN TURKEY
IN ACCORDANCE WITH STCW 95**

by

**PROF.DR. OSMAN K. SAĞ
DEAN**



**THE EIGHTH CONGRESS OF THE
INTERNATIONAL MARITIME ASSOCIATION
OF THE MEDITERRANEAN**

**NOVEMBER 3, 1997
ISTANBUL, TURKEY**

November 3, 1997
MONDAY

**THE EIGHTH CONGRESS OF THE
INTERNATIONAL MARITIME ASSOCIATION
OF THE MEDITERRANEAN**

**THE ITU, MARITIME FACULTY AND THE
MERCHANT MARITIME EDUCATION IN TURKEY
IN ACCORDANCE WITH STCW '95**

by

**PROF.DR. OSMAN K. SAĞ
DEAN**

I. BRIEF HISTORY OF ITUMF -

II. ITUMF, TODAY -

A -ITU

B -MARITIME FACULTY

TUZLA CAMPUS / 45 BUILDINGS

STUDENT BODY / BOARDING, UNIFORM, MEN

STAFF CAPACITY / FULL - PART TIME

DEPARTMENTS / DIVISIONS

LABORATORIES / SIMULATORS

INSTRUCTION IN ENGLISH > 30% OF CURRICULUM

ENGLISH LANGUAGE INSTRUCTION - PREP CLASS

UNDERGRADUATE CURRICULUM - STCW '95

IMO MODEL COURSES

7.01 - 7.03 - 7.02 - 7.04

POSTGRADUATE STUDIES

INTERNATIONAL ACADEMIC COOPERATION

C - MARITIME FACULTY M/S AKDENİZ TRAINING VESSEL

Length 148 m

Width 18.6 m

7864 Gross Tons - 3536 DWT

Cadet Training Capacity - Minimum 350

Crew - 86

D - ITU MARITIME FACULTY / UNDP - IMO COOPERATION
(1993-1997)

1. MARINE SAFETY TRAINING CENTER (MSTC) OF TURKEY
FACILITIES -

- OLYMPIC INDOORS SURVIVAL AT SEA TRAINING SWIMMING POOL
- CLOSED SURVIVAL CRAFT PLATFORM
- FIRE FIGHTING TRAINING CENTER
- FIRST AID INSTRUCTION CENTER
- ARPA RADAR SIMULATOR LABORATORY
- GMDSS LABORATORY
- MARITIME LIBRARY
- ADMINISTRATION BUILDING OF MSTC
- GUEST HOUSES FOR SEAFARERS

2. STAFF TRAINING

3. CONTINUING STUDIES CARRIED OUT

(AUTHORIZATION GRANTED BY PRIME MINISTRY,
UNDERSECRETARIAT FOR MARITIME AFFAIRS -
ADMINISTRATION)

- ISM / ISO 9002 TRAINING AND CONSULTANCY
- GMDSS
- ARPA RADAR - 4 COURSES
- MARINE FIRE FIGHTING
- SURVIVAL AT SEA
- FIRST AID
- CLOSED SURVIVAL CRAFT UTILISATION
- PERSONAL SAFETY AND SOCIAL RESPONSIBILITY
- BASIC SEAFARERS TRAINING
- CRUDE OIL WASHING
- TANKER SAFETY
- GAS FREE
- INERT GAS

NOTE - SINCE JANUARY 1996 MORE THAN 12,000 SEAFARERS
TRAINED APPROXIMATELY 500 OF WHOM ARE NON
TURKISH.

4. PROJECT MED/96/702

PORT STATE CONTROL IN THE EASTERN AND SOUTHERN
MEDITERRANEAN

- a) INTERNATIONAL MARITIME HUMAN RESOURCES TRAINING
 - WORLD MARITIME UNIVERSITY (MALMO, SWEDEN)
 - ARAB ACADEMY OF SCIENCE AND TECHNOLOGY
(AAST - ALEXANDRIA, EGYPT)
 - ECOLE d'Administration des Affaires Maritimes
(Bordeaux, France)
 - INTERNATIONAL MARITIME LAW INSTITUTE (IMLI)
(MALTA)
 - * ISTANBUL TECHNICAL UNIVERSITY
MARITIME FACULTY (ITUMF)
 - b) ORGANIZATION OF INTERNATIONAL CONGRESS / SEMINARS
 - c) CONTRIBUTION TOWARDS SOFTWARE OF THE PROJECT
 - d) INITIATION OF ACADEMICAL / TECHNICAL COOPERATION
BETWEEN RESPECTIVE INSTITUTES
5. TRANSLATION OF IMO PUBLICATIONS
(AUTHORIZATION GRANTED BY IMO)
IMO MODEL COURSES
STCW '95
6. TRANSLATION OF ISF PUBLICATIONS
(AUTHORIZATION GRANTED BY ISF)
7. INTERNATIONAL TASKS
- TURKISH DELEGATION AT IMO
 - COMPETENT PERSON TO IMO / SG
STCW '95 CHAPTER I - REGULATION 1/7
COMMUNICATION OF INFORMATION
PROF.DR. OSMAN K. SAĞ / CAPTAIN T. AKIN
- E - ITU, MARITIME FACULTY / ADMINISTRATION COOPERATION
- SEAFARERS EXAMINATION CENTER OF TURKEY
EXAMS AT ALL LEVELS OF
CERTIFICATION OF COMPETENCY
WITH AUTHORIZATION GRANTED
BY THE ADMINISTRATION
- F - ITU, MARITIME FACULTY / NAVAL ACADEMY COOPERATION
- G - ACADEMICAL AND TECHNICAL ASSISTANCE PROVIDED FOR OTHER
MARITIME TRAINING INSTITUTES
- ITU, MARITIME JUNIOR COLLEGE

TURKISH MARITIME EDUCATION FOUNDATION
IN COOPERATION WITH TURKISH CHAMBER OF SHIPPING AND
OTHER MARITIME TRAINING INSTITUTES

H - DEVELOPMENT PLAN FOR THE NEXT FIVE YEARS (1998-2002)

SIMULATORS CENTER

SHIPHANDLING
ENGINE ROOM
VTS
CARGO HANDLING
OIL SPILL MANAGEMENT
BALLAST CONTROL
OIL AND GAS PROCESSES
THERMAL POWER PLANT
PLANETARIUM

MARINA

UTILISATION OF "SAKIZ" PENINSULA CAMPUS FOR INCREASING
THE CAPACITY

I - MISSION OF ITUMF

INTERNATIONAL MARITIME TRAINING OF HUMAN RESOURCES AT
STCW '95 STANDARDS
LESS MARITIME POLLUTION
LESS ACCIDENTS AT SEA
MORE MARITIME SAFETY AND ENVIRONMENTAL PROTECTION

III. FIGURES -

1. ITU MARITIME FACULTY,
MARINE SAFETY TRAINING CENTER AND
SEAFARERS EXAMINATION CENTER OF TURKEY
2. ITUMF ORGANIZATION CHART
3. ITUMF DECK DEPARTMENT
UNDERGRADUATE CURRICULUM (STCW '95)
IMO MODEL COURSES 7.03 - 7.01 - PLUS
4. ITUMF MASTER / CHIEF MATE EDUCATION AND CERTIFICATION
5. ITUMF ENGINE DEPARTMENT
UNDERGRADUATE CURRICULUM (STCW '95)
IMO MODEL COURSES 7.04 - 7.02 - PLUS
6. ITUMF CHIEF / SECOND ENGINEER EDUCATION AND CERTIFICATION

7. CERTIFICATION SYSTEM OF STCW '95 IN TURKEY

8. IMO MODEL COURSES TRANSLATED INTO TURKISH AND UTILISED IN CURRICULUM AND CONTINUING STUDIES

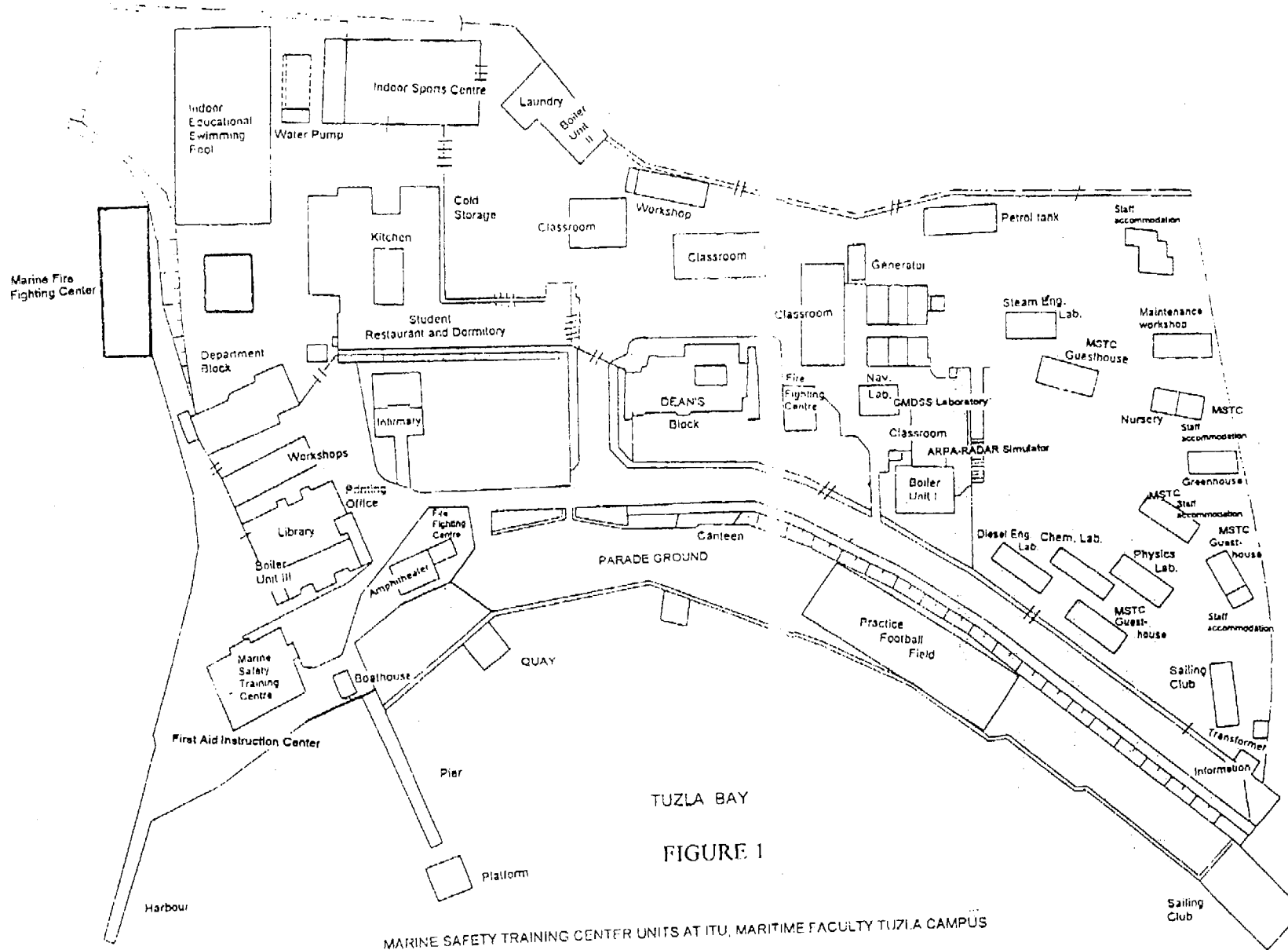
IV. APPENDIX -

1- ITUMF AND MERCHANT MARITIME EDUCATION IN TURKEY IN ACCORDANCE WITH STCW '95.

2- ITUMF IN IMO COMPENDIUM OF MARITIME TRAINING INSTITUTES.

3- ITUMF IN TURKISH SHIPPING WORLD - NOVEMBER '96.

4- CV OF PROF.DR. OSMAN K. SAĞ - ITUMF DEAN.



TUZLA BAY

FIGURE 1

MARINE SAFETY TRAINING CENTER UNITS AT ITU, MARITIME FACULTY TUZLA CAMPUS

ITUMF ORGANIZATION CHART

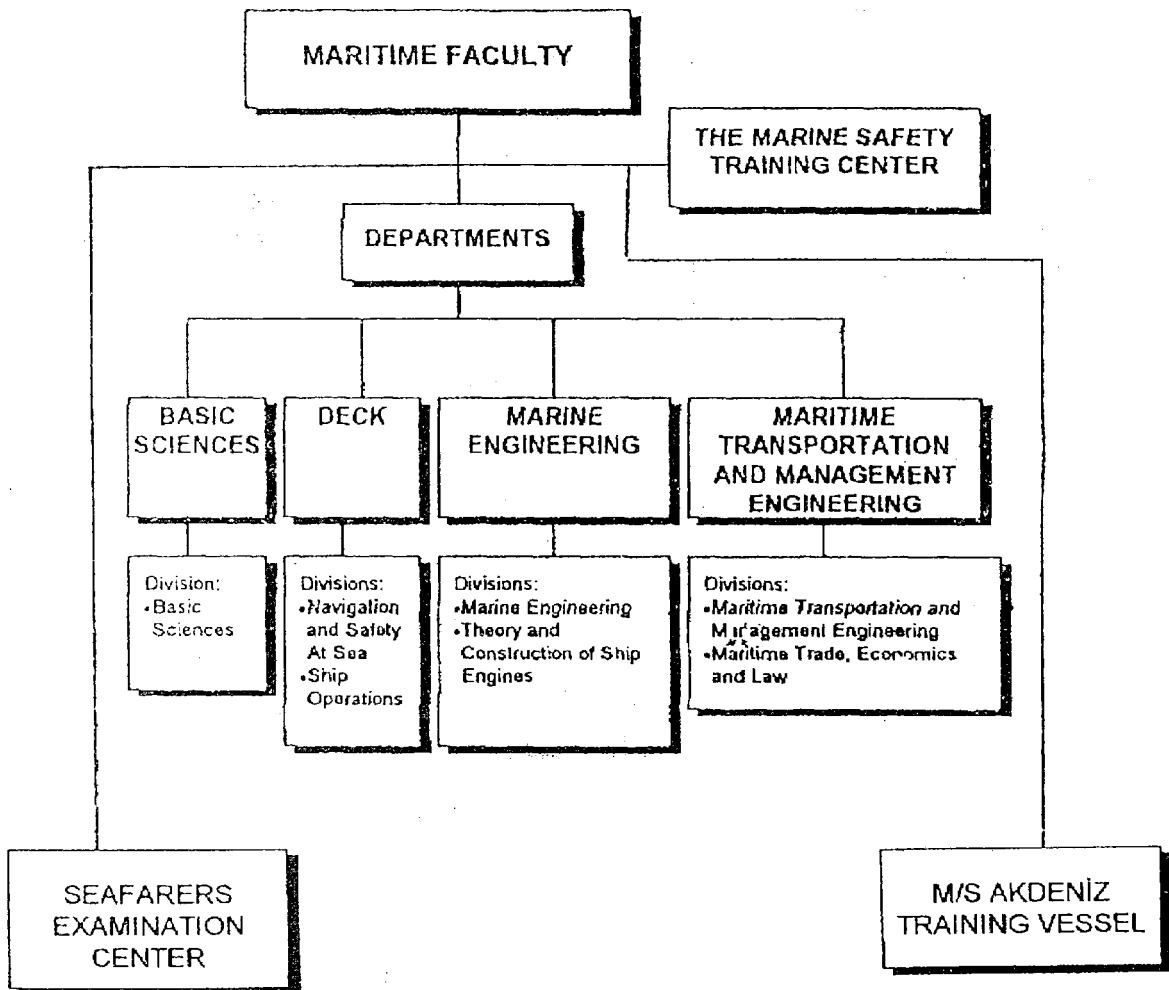


FIGURE 2

DECK DEPARTMENT Curriculum

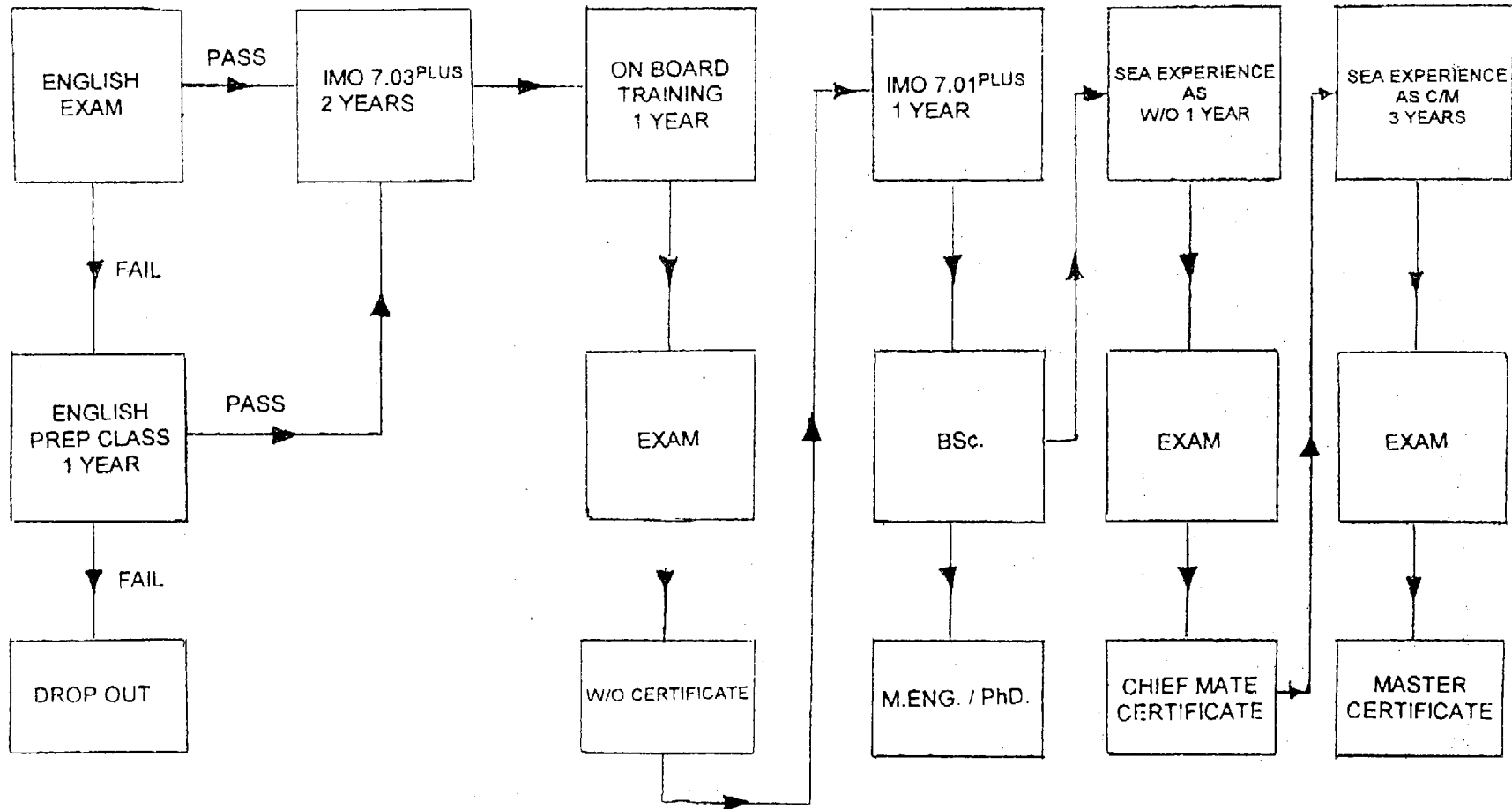
First Semester			Second Semester		
GVZ 100	Mathematics I	(4-0)	GVZ 200	Mathematics II	(4-0)
GVZ 101	Physics I	(2-1)	GVZ 201	Physics II	(2-1)
GVZ 102	Marine Chemistry	(2-1)	GVZ 210	Statics	(2-0)
GVZ 105	Computer Programming	(2-1)	GVZ 233	Watchkeeping I	(4-0)
GVZ 121	Ship Power Plants I	(2-0)	GVZ 235	Seamanship II	(2-1)
GVZ 135	Seamanship I	(1-1)	GVZ 236	Navigation II	(4-2)
GVZ 139	Navigation I	(4-2)	GVZ 242	Safety At Sea II	(1-1)
GVZ 142	Safety At Sea I	(1-1)	GVZ 260	English For Deck Officers I	(3-0)
GVZ 160	English For Deck Officers I	(3-0)	GVZ 265	Physical Education II	(1-1)
GVZ 165	Physical Education I	(1-1)			
ESP	Introduction to Computer Programming	(2-0)	ESP	Basic Marine Technology	(2-0)
Third Semester			Fourth Semester		
GVZ 300	Mathematics III	(3-0)	GVZ 400	Mathematics IV	(3-0)
GVZ 303	Spherical Trigonometry	(2-0)	GVZ 418	Fluid Mechanics	(2-0)
GVZ 312	Dynamics	(2-0)	GVZ 431	Ship Stability I	(3-1)
GVZ 317	Electronics	(2-1)	GVZ 439	Navigation IV	(4-2)
GVZ 327	Ship Construction	(2-0)	GVZ 440	Electronic Navigation I	(2-2)
GVZ 333	Watchkeeping II	(4-0)	GVZ 442	Safety At Sea III	(2-2)
GVZ 335	Seamanship III	(2-2)	GVZ 459	Economy	(2-0)
GVZ 339	Navigation III	(4-2)	GVZ 490	English For Deck Officers II	(2-0)
GVZ 350	English For Deck Officers III	(2-0)	GVZ 481	History of the Turkish Revolutions II	(2-0)
GVZ 391	History of the Turkish Revolutions I	(2-0)			
ESP	Introduction to Naval Architecture	(2-0)	ESP	Cargo Handling and Stowage	(3-0)
			ESP	Emergency Procedures	(2-0)
			ESP	Shooting	(2-0)
			ESP	Port Management	(2-0)
Fifth Semester			Sixth Semester		
GVZ 534	Ship Maneuvering and Handling I	(1-1)	7 Months Ocean Training 15 February - 15 September 28 Credits		
GVZ 537	Meteorology I	(2-1)			
GVZ 539	Navigation V	(4-2)			
GVZ 540	Electronic Navigation II	(2-2)			
GVZ 541	Cargo Handling and Stowage I	(4-0)			
GVZ 545	Marine Communication I	(2-2)			
GVZ 547	Basic Law	(2-2)			
GVZ 566	Turkish I	(2-0)			
ESP	Chartering and Broking	(2-0)			
Seventh Semester			Eighth Semester		
GVZ 721	Ship Power Plants II	(2-0)	GVZ 833	Watchkeeping III	(2-0)
GVZ 731	Cargo Ship Stability II	(3-1)	GVZ 834	Simulator	(2-3)
GVZ 734	Ship Maneuvering and Handling II	(2-1)	GVZ 837	Meteorology II	(1-1)
GVZ 735	Oceanography	(2-0)	GVZ 841	Cargo Handling and Stowage II	(3-0)
GVZ 739	Navigation VI	(4-2)	GVZ 845	Marine Communication II	(2-2)
GVZ 742	Safety At Sea IV	(2-1)	GVZ 848	Maritime Law II	(4-0)
GVZ 746	Maritime Law I	(4-0)	GVZ 855	Personnel Management	(2-0)
GVZ 746	Chartering	(2-0)	GVZ 860	Project	(2-4)
GVZ 766	Turkish II	(2-0)			
ESP	Ship Owner Business	(2-0)	ESP	Marine Engineering	(3-0)
ESP	Marine Insurance	(2-0)	ESP	Maritime Law	(2-2)
			ESP	Navigation	(3-2)
			ESP	Personnel Management	(2-0)

Credit hours, (Theory-Practice)
English Language Supported Programme

NEW UNDERGRADUATE CURRICULUM OF MARITIME EDUCATION
IN TÜRKIYE (DECK AND ENGINE DEPARTMENTS) INITIATED AT
1995. (IMO MODEL COURSES 7.01, 7.02, 7.03, 7.04)

FIGURE 3

ITU
MARITIME FACULTY
STCW 95
MASTER AND CHIEF MATE
EDUCATION AND CERTIFICATION



NEW SYSTEM - (1+4) + (1) + (3) = 8 + 1 YEARS
 OLD SYSTEM - (1+4) + (3) + (1) + (3) = 11 + 1 YEARS

FIGURE 4

MARINE ENGINEERING DEPARTMENT

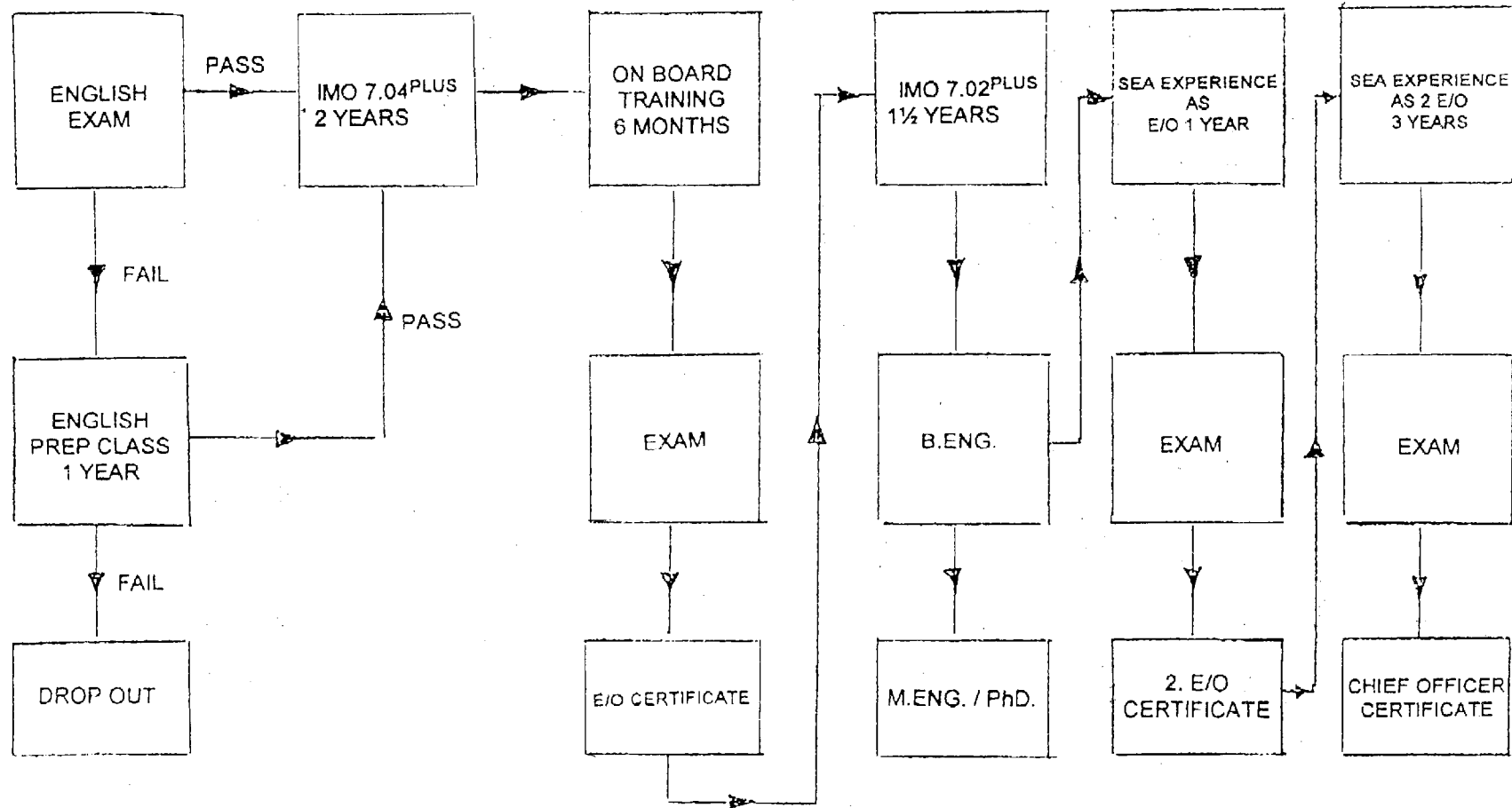
Curriculum

First Semester			Second Semester		
GMZ 100	Mathematics I	(4-2)	GMZ 200	Mathematics II	(4-2)
GMZ 101	Physics I	(3-1)	GMZ 201	Physics II	(3-1)
GMZ 102	Marine Chemistry	(2-1)	GMZ 214	Engineering Drawing II	(2-2)
GMZ 105	Computer Programming	(2-1)	GMZ 215	Workshop II	(2-4)
GMZ 114	Engineering Drawing I	(2-2)	GMZ 221	Introduction to Marine Engineering II	(3-0)
GMZ 115	Workshop I	(1-3)	GMZ 222	Statics	(2-0)
GMZ 121	Introduction to Marine Engineering I	(3-0)	GMZ 250	English For Engine Officers II	(3-0)
GMZ 160	English For Engine Officers I	(3-0)	GMZ 255	Physical Education II	(1-1)
GMZ 165	Physical Education I	(1-1)			
ESP	Introduction to Computer Programming	(2-0)	ESP	General Aspect of Marine Engineering	(2-0)
Third Semester			Fourth Semester		
GMZ 300	Mathematics III	(4-0)	GMZ 400	Mathematics IV	(4-0)
GMZ 310	Dynamics	(3-1)	GMZ 405	Numerical Analysis	(2-0)
GMZ 315	Workshop III	(2-4)	GMZ 409	Material Science	(3-0)
GMZ 317	Introduction to Marine Electrotechnology	(4-0)	GMZ 411	Strength of Materials	(3-1)
GMZ 318	Operation and Maintenance of Main and Auxiliary Machinery I	(4-4)	GMZ 415	Workshop IV	(2-4)
GMZ 319	Thermodynamics I	(3-0)	GMZ 417	Marine Electrotechnology I	(3-1)
GMZ 360	English For Engine Officers III	(2-0)	GMZ 418	Operation and Maintenance of Main and Auxiliary Machinery II	(2-2)
GMZ 361	History of the Turkish Revolutions I	(2-0)	GMZ 419	Thermodynamics II	(3-0)
			GMZ 450	English For Engine Officers IV	(2-0)
			GMZ 461	History of the Turkish Revolutions I	(2-0)
ESP	Marine Hydraulics	(2-0)	ESP	Energy and Energy Sources	(2-0)
ESP	Introduction to Naval Architecture	(2-0)	ESP	Energy Conversion	(2-0)
Fifth Semester			Sixth Semester		
GMZ 517	Marine Electrotechnology II	(4-1)	4 Months Ocean Training 28 Credits		
GMZ 518	Fluid Mechanics	(3-0)			
GMZ 520	Heat Transfer	(3-0)			
GMZ 525	Marine Diesel Engines I	(4-2)			
GMZ 526	Marine Auxiliary Machinery I	(3-0)			
GMZ 527	Naval Architecture	(3-0)			
GMZ 532	Machine Design	(3-0)			
GMZ 568	Turkish I	(2-0)			
ESP	Marine Heat Engines	(2-0)			
Seventh Semester			Eight Semester		
GMZ 722	Steam Boilers	(3-0)	GMZ 823	Steam Turbines II	(3-0)
GMZ 723	Steam Turbines I	(2-1)	GMZ 824	Gas Turbines	(2-0)
GMZ 725	Marine Diesel Engines II	(4-2)	GMZ 825	Marine Diesel Engines III	(3-1)
GMZ 726	Marine Auxiliary Machinery II	(3-1)	GMZ 828	Survey Procedures	(2-0)
GMZ 732	Electronics	(3-0)	GMZ 829	Refrigeration	(3-0)
GMZ 733	Automatic Control	(3-0)	GMZ 834	Heating, Ventilation and Conditioning	(3-0)
GMZ 740	Management Economy	(2-0)	GMZ 859	Maritime Law	(2-0)
GMZ 753	Labor Law	(2-0)	GMZ 844	Simulator	(2-3)
GMZ 766	Turkish II	(2-0)	GMZ 880	Project	(2-4)
ESP	Power Plants	(2-0)	ESP	Marine Engineering	(3-0)
			ESP	Mechanical Vibrations of Ships	(3-0)
			ESP	Personnel Management	(2-0)

* Credit Hours, (Theory-Practice)
 ** English Language Supported Programme

FIGURE 5

ITU
MARITIME FACULTY
STCW 95
CHIEF AND SECOND ENGINEER OFFICER
EDUCATION AND CERTIFICATION



NEW SYSTEM - (1+4) + (1) + (3) = 8 + 1 YEARS;
 OLD SYSTEM - (1+4) + (3) + (1) + (3) = 11 + 1 YEARS;

FIGURE 6

FIGURE 7

CERTIFICATION SYSTEM OF STCW 95

1. DECK DEPARTMENT

	(ENGLISH)	(TURKISH)
RATINGS	Deck Boy	Miço
	Ordinary Seaman	Gemici
	Able Seaman	Usta Gemici
	Boatswain	Güverte Lostramosu
	Radio Officer	Telsiz Zabiti
	Radio Electronic Officer	Telsiz Elektronik Zabiti
OFFICERS (NATIONAL)	Watchkeeping Officer	Yakınyol Vardiya Zabiti
	Chief Officer	Yakınyol Birinci Zabiti
	Master Class IV	Yakınyol Kaptan Klas IV
	Master Class III	Yakınyol Kaptan Klas III
	Master Class II	Yakınyol Kaptan Klas II
	Master Class I	Yakınyol Kaptan Klas I
	Restricted Watchkeeping Officer	Sınırlı Vardiya Zabiti
	Restricted Chief Officer	Sınırlı Birinci Zabiti
	Restricted Master	Sınırlı Kaptan
	ITU Maritime Faculty Graduates OFFICERS (INTERNATIONAL)	Oceangoing Watchkeeping Officer
	Oceangoing Chief Officer	Uzakyol Birinci Zabiti
	Oceangoing Master	Uzakyol Kaptanı

2. MARINE ENGINEERING DEPARTMENT

	(ENGLISH)	(TURKISH)
RATINGS	Wiper	Silici
	Fireman	Ateşçi
	Oiler (Motorman)	Yağcı
	Donkeyman	Makina Lostramosu
ENGINEERS (NATIONAL)	Engineer Officer	Yakınyol Makina Zabiti
	Second Engineer	Yakınyol İkinci Makinisti
	Chief Engineer Class IV	Yakınyol Baş Makinisti Klas IV
	Chief Engineer Class III	Yakınyol Baş Makinisti Klas III
	Chief Engineer Class II	Yakınyol Baş Makinisti Klas II
	Chief Engineer Class I	Yakınyol Baş Makinisti Klas I
	Restricted Engineer Officer	Sınırlı Makina Zabiti
	Restricted Second Engineer	Sınırlı İkinci Makinisti
	Restricted Chief Engineer	Sınırlı Baş Makinisti
	ITU Maritime Faculty Graduates OFFICERS (INTERNATIONAL)	Unlimited Engineer Officer
	Unlimited Second Engineer	Uzakyol İkinci Müh./Mak.
	Unlimited Chief Engineer	Uzakyol Baş Müh./Mak.

IMO MODEL COURSES 1996

- 1- 1.01 Oil Tanker Familiarization
- 2- 1.02 Advanced Training Programme on Oil Tanker Operation
- 3- 1.03 Chemical Tanker Familiarization
- 4- 1.04 Advanced Training Programme on Chemical Tanker Operations
- 5- 1.05 Liquefied Gas Tanker Familiarization
- 6- 1.06 Advanced Training Programme on Liquefied Gas Tanker Operations
- 7- 1.07 Radar Observation and Plotting
- 8- 1.08 The Operational Use of Automatic Radar Plotting Aids (ARPA)
- 9- 1.09 Radar Simulator
- 10- 1.11 MARPOL 73/78 Annex I
- 11- 1.12 MARPOL 73/78 Annex II
- 12- 1.13 Medical Emergency - Basic Training Course + Compendium
- 13- 1.14 Medical Emergency - First Aid Course + Compendium
- 14- 1.15 Medical Care Course + Compendium - Volume I - II
- 15- 1.17 Basic Stability
- 16- 1.18 Basic Handling and Care of Cargo
- 17- 1.19 Personal Survival
- 18- 1.20 Basic Fire Fighting
- 19- 1.23 Proficiency in Survival Craft
- 20- 2.01 Maintenance Planning and Maintenance Execution
- 21- 2.02 Maritime Search and Rescue Coordinator Surface Search
- 22- 2.03 Advanced Training in Fire Fighting Course + Compendium
- 23- 2.06 Cargo and Ballast Handling Simulator
- 24- 2.07 Engine Room Simulator
- 25- 2.08 Fuel Combustion Efficiency
- 26- 2.09 Electronics for Engineers
- 27- 3.02 Survey of Small Craft
- 28- 3.03 Survey of Machinery Installations
- 29- 3.04 Survey of Electrical Installations
- 30- 3.05 Survey of Fire Appliances and Provisions
- 31- 3.06 Survey of Life-Saving Appliances and Arrangements
- 32- 3.07 Hull and Structural Surveys - Volume I-II
- 33- 3.08 Survey of Navigational Aids and Equipment Course
- 34- 3.09 Port State Control
- 35- 3.11 Marine Accident and Incident Investigation
- 36- 3.12 Examination and Certification of Seafarers - Volume I-II-III
- 37- 3.13 Maritime Search and Rescue Administrator
- 38- 3.14 Maritime Search and Rescue Mission Coordinator
- 39- 3.16 Oil Pollution Liability and Compensation
- 40- 5.02 Port Logistics
- 41- 5.03 Planned Fleet Maintenance and Hull Protection
- 42- 5.04 Human Resources Management
- 43- 6.09 Training Course for Instructors - Volume I
- 44- 7.01 Master and Chief Mate - Volume I-II
- 45- 7.02 Chief and Second Engineer Officer (Motor Ships)
- 46- 7.03 Officer in Charge of a Navigational Watch - Volume I-II
- 47- 7.04 Engineer Officer in Charge of a Watch - Volume I-II

FIGURE 8 IMO MODEL COURSE AUTHORIZATION DOCUMENT GRANTED TO ITU, MARITIME FACULTY -

APPENDIX 1

THE ITU, MARITIME FACULTY AND THE MERCHANT MARITIME EDUCATION IN TURKEY IN ACCORDANCE WITH STCW 95

1. ISTANBUL TECHNICAL UNIVERSITY - HISTORY

The tradition of engineering education at ITU started in 1773 under the name of *Mühendishane-i Bahr-i Hümayun*. This school, which provided education in shipbuilding and cartography, was followed by the establishment of the *Mühendishane-i Berr-i Hümayun* in 1792, which aimed at meeting the requirements of the army. In 1847 this institution was converted into one which provided architectural education as well as engineering. The *Hendese-i Mülkiye* and the *Mühendis Mekteb-i Alisi* (Higher Engineering School), which were established at the beginning of the twentieth century, trained young staff who worked for the development of the infrastructure of the country. In 1928 the Higher Engineering School became responsible for training in architecture and engineering under its own jurisdiction and after 1944 this training continued under the jurisdiction of ITU. In 1947 ITU became an autonomous university which included the Faculties of Civil, Mechanical and Electrical Engineering and Architecture.

Today ITU includes five campuses spread over an area of 210 hectares in different parts of Istanbul. These campuses are made up of eleven faculties carrying out undergraduate studies, three graduate institutes, three departments dependent on the Rectorate, nine applied research centres and a Turkish State music conservatory.

The Rectorate, the Graduate School (Institute of Science and Technology), the

Institute of Nuclear Energy, the Faculty of Electrical and Electronic Engineering, the Faculty of Science and Literature, the Faculty of Naval Architecture and Ocean Engineering, the Faculty of Civil Engineering, the Faculty of Chemical and Metallurgical Engineering, the Faculty of Mining Engineering, the Faculty of Aeronautics and Astronautics, and the Department of Physical Education at Ayazağa Campus; the Institute of Social Sciences, the Faculty of Architecture and the Fine Arts Department at Taşkışla Campus; the Faculty of Mechanical Engineering and the Department of Language and Revolutionary History at Gümüßsuyu Campus; and the Faculty of Management Engineering, the Department of Language and Revolutionary History and the Turkish State Music Conservatory at Maçka Campus.

The total number of academic staff members at Istanbul Technical University is 1,872; 706 of whom are Professors, Associate Professors and Assistant Professors and the remaining 1,166 of whom are Research Assistants.

The total number of undergraduate students at Istanbul Technical University is 15,931; 357 of whom are foreign students. The total number of postgraduate students at Istanbul Technical University is 4,656; 3,533 of whom are undergoing research at Master's level, and the remaining 1,123 at Doctorate level.

2. ITU, MARITIME FACULTY - HISTORY

What is now called the Maritime Faculty of İTÜ was founded on December 15, 1884 under the name 'Merchant Captain Boarding School' within the grounds of the College of the Navy in Heybeliada, Istanbul as a special part of the school. This school was geared towards

meeting the top level manpower requirements of maritime transportation in Turkey.

This establishment, which was closed in 1908 following the graduation of its first students, was reopened in 1909 by **Captain Hamit Naci Öndes** in Azapkapı, Istanbul as a private day-time school for a 4 year educational period after Junior High school under the name "**Milli ve Hususi Ticaret-i Bahriye Kaptan ve Çarkçı Mektebi**" (the 'National and Private Merchant Captain and Engineering School') including Deck and Engine Departments. The school first operated in Yüksekaldırım, Istanbul, then at its prior location of Azapkapı, Istanbul and finally moved to Paşalimanı, Üsküdar in Istanbul in 1913.

In 1927 it moved to Feriye Palace (now the Ziya Kalkavan Anatolian Marine Lycee) in Ortaköy, Istanbul and in 1928 it was made a State school under the name **Ali Deniz Ticaret Mektebi** ('High Merchant Marine School') and was nationalized and attached to the Ministry of Economy. Eventually it was reorganized as a training institution consisting of a 2 year lycee and Deck and Engine Departments which provided higher education. This school, which became a boarding school in 1930, was named the **Yüksek Deniz Ticaret Mektebi** ('Higher Merchant Maritime School') in 1934 and the training period of the departments which were providing higher education expanded to 3 years. The Higher Merchant Maritime School was connected to the Ministry of Communications and Transport in 1939 and its lycee division was closed in 1945.

On June 3, 1946, according to Statute law, number 4915, it was renamed as **Yüksek Denizcilik Okulu** and again attached to the Ministry of Transport and was converted into a 4 year higher education institution with Deck and Engine Departments. Even though a 2 year department of Harbour education was established in 1953 in order to train Harbour masters, this department was closed in 1956. The Transport and Administration

Department, which was opened in 1975 with the aim of training administrative personnel for the sea, was closed in 1982.

On August 18, 1981 under Statute law, number 2507, the school moved to Tuzla under the command of the Navy in Istanbul and the name was changed to the Merchant Marine Academy and the educational structure was reorganized.

With the passage of Statute law, number 3477, on October 6, 1988 the school became a part of Istanbul Technical University, and was attached to the Rectorate at the beginning of 1989.

On July 3, 1992, under Statute law, number 2809, the **Maritime Faculty of ITU** was founded.

3. GENERAL INFORMATION ABOUT THE ITU, MARITIME FACULTY

The ITU, Maritime Faculty is one of the eleven faculties of Istanbul Technical University, and has 4 years (8 semesters) of Undergraduate Education for cadets with sufficient proficiency in English Language in its

- Deck Department
 - . Navigation and Safety at Sea Division
 - . Ship Operations Division
- Marine Engineering Department
 - . Marine Engineering Division
 - . Theory and Construction of Marine Engines Division

together with Departments operating in support to the above, namely,

- Maritime Transportation and Management Engineering Department
 - . Maritime Transportation and Management Engineering Division
 - . Maritime Trade, Economics, and Law Division
- Basic Sciences Department
 - . Basic Sciences Division
 - . Maritime English Division

Cadets without sufficient proficiency in English Language, attend to English Preparatory Class for one year (2 semesters) before their Undergraduate Education.

Throughout their Undergraduate Education, cadets are required to attend at least to 30% of their Undergraduate Curriculum in English Language, and the rest in Turkish.

ITU, Maritime Faculty is a boarding school for only male cadets with uniforms.

Till 1995, Turkish Government provided the tuition, room, board, books and uniforms for the cadets. As compensation for the expenses met by the Government, graduates had to perform a mandatory two year tour of duty for each year spent at the Faculty, either at Maritime State Institutions as determined by the Maritime Undersecretariat or alternatively for the Turkish flag private ship owners who reimbursed the expenses met by the Government including legal interest.

Since the Maritime State Institutions such as D.B. Turkish Cargo Lines, and Turkish Maritime Lines had been taken into the content of privatization recently, Turkish Government allocates a rather Limited budget to the Faculty since 1995, and graduates are free to be employed nationally or internationally.

The Faculty Administration continued the same style, and standard of education during this transition period with considerable financial sacrifice, but is in the process of bringing a legal solution to the problem.

The cadets of ITU Maritime Faculty continue their education under certain rules and regulations according to Turkish Maritime discipline, and traditions accumulated over hundred years and within a framework of respectful vertical relationships. Thus, the education at Maritime Faculty has very unique characteristics of its own, and rather different than the other Faculties of ITU.

The ITU, Maritime Faculty carries out its activities at Tuzla Campus, situated on Marmara Sea Coast east of Istanbul, 70 km away from the main ITU Ayazağa Campus. The Tuzla Campus has a 400 m shoreline along

the Marmara Sea with a 67,000 m² living area, and an indoors area of 12,500 m² including 45 independent buildings.

The Faculty has a total body of 80 Academical Staff Members 22 of whom are part time Senior Lecturers from the Maritime Sector.

3 Professors, 3 Associate Professors, 2 Assistant Professors, 21 Senior Lecturers, 5 Lecturers, 14 Research Assistants, 10 English Language Instructors (2 of whom are British) are full time members of the Faculty Academical Staff.

The Dean, elected for a period of 3 years is the Head of the Faculty. Two Vice Deans assist the Dean in running the Faculty.

Department Heads are responsible to run the Academical work of each Department. The Division Heads assist them within this frame work.

The Faculty Secretary General is the Head of all social workers in the Faculty, and directly responsible to the Dean.

The Head of the Regimental System takes care of the Boarding System of the Faculty, and directly reports to the Dean.

The Executive Committee of the Faculty deals with the Administrative problems where as the Faculty Committee deals with Academical problems. Dean is the Head of both committees.

The Faculty proudly owns a great Traing Vessel M/S AKDENİZ for the summer practical sea training of the cadets. M/S AKDENİZ is a passanger ship of 148 m length, 18.6 width, 7864 gross tons (3536 DWT, 2360 NRT), and enholding 120 luxury cabins, sleeping 350 cadets, 100 crew. M/S AKDENİZ has three first class restaurants, one Dancing and Entutainment saloon, one Hobby Saloon, one Oriental Saloon, a Discoteque, a Sauna and Physical Fitness Saloon, two swimming pools. All cabins has airconditioning, private shower and bathrooms. The vessel has a first class infirmary with all urgent medical aids.

The Faculty has a number of Simulators including ARPA-RADAR and GMDSS, and several other dessical laboratories.

4. ADMISSION REQUIREMENTS -

Istanbul Technical University is one of the top three Universities among the 61 Universities of Türkiye. The Maritime Faculty ranks equal third among the 11 Faculties of Istanbul Technical University.

Every year approximately 1.5 Million High School Graduates take the General Entrance Examination in Türkiye for Universities. The Maritime Faculty can only admit 100 Cadets to Deck, and 50 Cadets to Marine Engineering Department every year. In 1996, the top cadets entering the Faculty ranked 202. in all Türkiye among 1.5 Million students, and 2. in all Faculties of İTÜ. The lowest entree to the Faculty ranked among the top 5% (75.000) of all High School Graduates.

Entering the exam, High School Graduates can make a list of 22 Faculties in descending order of priority, and depending on their success, they are placed in one of their choices. If they can not satisfy the minimum standards of any one of their choices, they can re take the exam in the following year.

In 1996, out of the 150 cadets admitted to the two Departments; 35 had the Maritime Faculty as one of their top 3 choices in this list of 22 institutions, which clearly indicates the popularity of İTU Maritime Faculty in Türkiye.

Successful students at the Entrance Exam are given a special Interview, and Physical Education Examination at the Faculty. Even then, successful students with speech, eye, and ear defects who can not fulfill the appropriate health criteria as proposed by STCW 95, through confirmation by a special health report issued from a fully equipped hospital can not be admitted to the Faculty, and are placed to their next choice at the Entrance Exam, along with failures of the Interview, and Physical Education Test.

5. UNDERGRADUATE EDUCATION - LABORATORIES AND TRAINING UNITS -

Till 1995, the Undergraduate Curriculum of the Deck Department consisted of basic programmes along the lines of IMO Model Course 7.03 of STCW 78 leading to

Deck Officers' Watchkeeping Certificate granted by the Maritime Undersecretariat together with the Bachelor of Science Degree in Deck Operations granted by the University.

Similarly, The Undergraduate curriculum of the Marine Engineering Department consisted of basic programs along the lines of IMO Model Course 7.04 of STCW 78 leading to Engineer Officers' Watchkeeping Certificate granted by the Maritime Undersecretariat together with the Bachelor of Engineering Degree in Marine Engine Operations granted by the University.

In both Departments large number of other courses required by the General University Education System in Türkiye were included in the curriculum.

Commencing with 1995, the Undergraduate Curriculum of both Departments are reorganized. Majority of the general courses required by the General University Education of Türkiye are discarded.

Instead in Deck Department 1606 Hours of IMO Model Course 7.03 is followed by 931 Hours of IMO Model Course 7.01 with 318 Hours of extra Major Area Courses, and 612 Hours of English Language Courses in Preparatory Year, if necessary. Thus with this program arranged according to STCW 95, upgrading courses leading to Deck Officers' Certificates (Chief Mate and Master) are also taken into account.

Similarly, in Marine Engineering Department 1986 Hours of IMO Model Course 7.04 is followed by 1022 Hours of IMO Model Course 7.02 with 319 Hours of extra Major Area Courses, and 612 Hours of English Language Courses in Preparatory Year, if necessary.

Again with this program arranged according to STCW 95 upgrading courses leading to Engineer' Officers' Certificates (Second Engineer and Chief Engineer) are also taken in to account.

IMO Model Courses are minimum requirements, and only rough guidelines. Thus the contents of these courses are observed to be way below the standards of the very high quality cadets entering the Maritime Faculty. So within the same number of hours, a much

higher degree of education is carried out at ITU, Maritime Faculty.

The practical sea training (12 months for Deck Department, and 6 months for Marine Engineering Department) is carried out utilising the vessels of mainly the Turkish Merchant Fleet. Some cadets carry out their practical sea training in other International vessels.

A training vessel is urgently required by the Faculty for more efficient and organised overall practical training the present day organization of which is proving to be more and more difficult every year with numbers increasing.

The ITU, Maritime Faculty has the following laboratories:

- a) ARPA-RADAR Simulator
- b) GMDSS Laboratory
- c) Navigation Laboratory
- d) Seamanship Laboratory
- e) Meteorology Laboratory
- f) Marine Engineering Laboratory
- g) Internal Combustion Engines Laboratory
- h) Steam Turbine Laboratory
- i) Physics Laboratory
- j) Chemistry Laboratory
- k) English Language Laboratory
- l) PC Computer Room

Moreover at the Campus there are some other units providing support services which are used both for undergraduate education, and applied training.

- a) Marine Vessels Unit
- b) Garage and Engine Maintenance Workshop
- c) Maritime Library
- d) Print House
- e) Wood Workshop
- f) Metal Workshop
- g) Welding Workshop

The number of graduates and undergraduate cadets in the past 4 years are given below.

Year	Graduates	Undergraduate Cadets
1993/94	120	479
1994/95	64	492
1995/96	92	635

1996/97	103	693
1997/98	-	750

6. POSTGRADUATE EDUCATION -

Postgraduate education leading to Masters Degree in all Deck, Marine Engineering, and Management Engineering Departments with a capacity of 10 Graduates/year/ Department has been commenced at the Faculty as of the 1993/94 Academical Year.

Postgraduate education leading to PhD in all above Departments is in the process of initiation.

Graduates of Maritime Faculty, Naval Architecture and Ocean Engineering Faculty of ITU, and Naval Academy make up the main body of the Postgraduate students at the Campus.

7. EXTRACURRICULAR ACTIVITIES AND SPORTS -

Distinct from other universities is the way that all cadets of the Maritime Faculty are boarding, apart from weekends and other holidays they are required to live together for 24 hours per day, so that they can be fully prepared for their professional career. According to the time schedule at ITU, Maritime Faculty, cadets have ample time available for their leisure activities.

ITU, Maritime Faculty Cadets spend their leisure time in activities such as:

- a) Ship Modelling
- b) Photography
- c) Music
- d) Journalism
- e) Environment
- f) Theater
- g) Chess and Bridge
- h) Cultural Activities
- i) Painting

The following sports facilities can be observed at Tuzla Campus of ITU, Maritime Faculty and utilised by the cadets, and the trainees of the Maritime Safety Training Center of Türkiye.

- a) Olympic Indoors Survival at Sea Training Pool

- b) Closed Survival Craft Training Platform
- c) Marine Fire Fighting Center
- d) Basic First Aid Training Center
- e) Gymnasium
- f) Physical Fitness Center
- g) Illuminated mini football ground
- h) Basketball / volleyball grounds
- i) Cross Track

The Sailing Club commenced at 1993 concentrating mainly on rowing, sailing, and underwater diving activities has the following vessels at the campus.

FD	- 3 boat (wooden)
Finn	- 12 boats (fiberglass)
Snipe	- 11 boats (7 fiberglass and 4 wooden)
470	- 8 boats (fiberglass)
380	- 7 boats
Cadet	- 2 boats (wooden)
Optimist	- 6 boats (wooden)
Windsurf	- 9
Lifeboat	- 3 (fiberglass)
Rowing boat	- 3
Racing boats with two poles and 7 pairs of oars	- 2
Racing boats with two poles and 4 pairs of oars	- 3
Zodiac Rubber boat	
15 m MARTI Boat	(170 Hp)

8. ITU, MARITIME FACULTY BOARDING SYSTEM -

The management of the boarding system of the Faculty is organized by the Head of the Regimental system, and his 5 Deputies / Company Officers. 14 Research Assistants who are Maritime Faculty Graduates assist them within this framework. The Head of the Regimental System is directly responsible to the Dean.

To develop the concepts of leadership and responsibility within cadets, a Committee of Cadet Officers is organized and attached to the Head of the Regimental System. The Committee of Cadet Officers is formed from representatives of Final Year Cadets elected by the whole student body in a democratical way.

Head Cadet Officer directly reports to the Head of the Regimental System.

The aim for cadets is to acquire a discipline appropriate to the Turkish values and traditions of the Sea, and the Merchant Fleet; and the Committee of Cadet Officers works in cooperation with the Regimental System Office in applying the essentials of discipline of the Maritime Faculty. Through the authority given to them, they arrange and control the relationship among classes within mutual love and respect.

The Committee of Cadets on duty every day represents the establishment of final year classes, and it is responsible to the Committee of Cadet Officers.

9. THE GRADUATES OF THE ITU, MARITIME FACULTY

Deck Department Graduates are granted a Bachelor of Science Degree (BSc.) in Deck Operations, and graduates of Marine Engineering Department are granted a Bachelor of Engineering Degree (B Eng.) in Marine Engineering Operations by ITU, Maritime Faculty.

Till 1998, the graduates of Deck and Marine Engineering Departments educated according to the STCW 78 Undergraduate Curriculum will be granted Certificate of Competencies as Watchkeeping Officers / Engineers respectively by the Prime Ministry, Maritime Undersecretariat.

Commencing in 1994, the Cadets of Deck and Marine Engineering Departments educated according to the newly reorganized STCW 95 Undergraduate Curriculum will be granted Certificate of Competencies as Watchkeeping Officers / Engineers respectively at the end of their third year at the Faculty. They will be eligible to sit for an exam of Chief Mate / Second Engineer Certificate of Competency one year after their Graduation from the Faculty.

In four years time after their Graduation from the Faculty, Graduates will be eligible to sit for an exam of Master / Chief Engineer Certificate of Competency.

Since 1941, a total of 3475 cadets have graduated from the ITU, Maritime Faculty. Among them, 1829 were from the Deck Department, 1497 were from the Marine Engineering Department, 149 were from the Maritime Transportation and Management Engineering Department and 12 from the Harbour Management Department.

The Faculty has unique strong ties, and cooperates frequently with the Alumni Association in arranging social activities, Alumni Reunions, graduation ceremonies every year.

10. JOB OPPORTUNITIES FOR ITU, MARITIME FACULTY GRADUATES-

When graduates commence employment on ships as Watchkeeping Officers / Engineers, salaries vary around \$2,000 per month, according to the type of vessel, tonnage, and the routes on which they accept duty. Also the academical ranking of the officer in his graduation class is a boundary condition for determining his wages.

As of January 1997, after having completed three years of experience at sea, graduates employed as Chief Mates / Second Engineers currently earn around \$3,000 per month.

Eight to ten years after graduation, graduates employed as Masters / Chief Engineers currently earn between \$4,000 - \$5,000 per month.

Vessels which are mostly preferred by Maritime Faculty Graduates are passenger ships, especially ocean going liners, bulk cargo carriers, grain vessels, and Ro-ro ships.

After having completed 10 to 20 years of experience at sea, it becomes easier for graduates to obtain jobs ashore.

Deck Graduates are employed mainly as General Managers, Executive and Technical Directors, Deck or Staff inspectors for shipping companies, and their salaries vary between \$1,000 - \$3,500 per month. In the same way, deck graduates have recently been working as ship agents or brokers. A majority of them have been working as pilots mostly in Istanbul. Pilots currently earn \$1,250 per month on average.

There is an increasingly high demand for Marine Engineering graduates as shore staff due to their experience at sea. They are mainly employed as general managers, executive and technical directors, or engine inspectors and their salaries vary currently between \$1,000 - \$3,500 per month. They are also employed as surveyors in some leading establishments, as inspectors for ship repair factories, as general managers, or as technical / sales managers for oil supply firms.

In addition, a vast number of the graduates have established their own businesses in different fields ranging from dealing with ship engines to becoming ship owners; from repair and maintenance workshop owners to equipment and catering services.

11. SECTORAL ACTIVITIES OF THE ITU, MARITIME FACULTY -

A) SEAFARERS CERTIFICATE OF COMPETENCY EXAMINATIONS AND REFRESHERS CERTIFICATE CONTINUING EDUCATION -

In majority of the countries of the world: the Maritime Universities, the Certificate of Competency Examination Center of the Administration, and the National Marine Safety Training Center where continuing education is given to seafarers of all levels of competency are independent of each other, and are situated separately.

Since ITU, Maritime Faculty is the most well established and sole Maritime Faculty of Türkiye at international standards with its 112 years of experience and background, the Prime Ministry, Undersecretariat for Maritime Affairs authorized the Faculty to carry out the exams for Certificates of Competency at all levels on behalf of the Administration in the form of a National Examination Center.

Thus ITU, Maritime Faculty organizes Certificate of Competency Exams four times per year at TUZLA, and several times in other Districts of Türkiye when required by the Administration.

Also ITU, Maritime Faculty organizes courses for Seafarers to prepare themselves for these examinations twice per year at Tuzla

Campus, and several times in other districts of Türkiye when required, and authorized by the Administration.

ITU, Maritime Faculty is the only authorized Maritime Center of Excellence in Türkiye to conduct refreshers certificate continuing education for seafarers. The Staff members utilise IMO Model courses during their training. All IMO Model Courses have been translated into Turkish to be utilised as course material by the Faculty Staff Members through a UNDP/IMO project.

The courses authorized to be conducted at the ITU, Maritime Faculty are as follows:

- ISM / ISO9002 TRAINING AND CONSULTANCY / NKK
- GMDSS
- ARPA-RADAR
- MARINE FIRE FIGHTING
- SURVIVAL AT SEA
- BASIC FIRST AID
- CLOSED SURVIVAL CRAFT UTILITATION
- WATCHKEEPING
- SEAFARERS BASIC TRAINING
- PORT STATE CONTROL
- CRUDE OIL WASHING
- TANKER SAFETY
- GAS FREE
- INERT GAS

In 1996, approximately 9000 Seafarers were trained at ITU, Maritime Faculty, 150 of whom were Bulgarians, Romanians, Croatians, and Yugoslavians.

It is strictly forbidden by the Administration for any other private Maritime company, or Maritime Training Institution to carry out similar activities in Türkiye to keep the International standards of training set by ITU, Maritime Faculty.

B) THE MARINE SAFETY TRAINING CENTER OF TÜRKIYE -

In order to carry out the continuing education for all seafarers in Türkiye at International Standards; ITU Maritime Faculty executed an International Project funded by

UNDP, and implemented in cooperation with IMO at the Tuzla Campus named the MARINE SAFETY TRAINING CENTER of TÜRKIYE.

The project initiated in 1993, and successfully completed in 1996 yielding as the sole MARINE SAFETY TRAINING CENTER of Türkiye, and commenced education in January 1, 1996 with the authorization of the Administration.

Brief information about the background of the necessity and the facilities of the center is given below -

1. In accordance to IMO sources, 80% of accidents at sea are caused by human error. Mistakes are usually made not because of faulty, deficient or inadequate regulations, but because the regulations and standards that do exist have been ignored.

2. Recently, IMO's priority has been to revise the most important international treaty dealing with crew standards - the International Convention of Standards of Training, Certification and Watch-keeping for Seafarers. But IMO cannot work alone. Governments and related industry should show the same determination to implement these standards.

3. The capacity of the Turkish Merchant Fleet showed an incredible increase of 78% in the last 10 years from 5.8 million DWT to 10.3 million DWT in 1995. The capacity of the fleet is expected to reach 15 million DWT by 2000.

4. Also the total number of vessels in the Turkish Merchant Fleet showed an increase of 30.9% in the past 10 years from a total of 802 vessels in 1985 to 1142 vessels in 1995 with a relatively old average age of 18.

5. Türkiye stands 17th among 154 nations in the world with the existing size of the merchant fleet and a share of 1.4% of the total world fleet. Thus, shipping is proven to be a vital sector of the economy of Türkiye as a whole.

6. The total capacity of the merchant fleets of the neighbouring countries, Black Sea Economical Co-operation (BSIC) countries and Türkiye has a share of 20% of the total world merchant fleet.

7. The total number of active seafarers in Türkiye at present is approximately 70,000; 12,500 of whom are officers, and the rest are ratings.

8. The Turkish maritime safety record in the last ten years shows that the annual loss ratios have generally been well above the corresponding world ratios falling under the categories of "foundered", "fire/explosion", "collision", and "wrecked/stranded". These are mainly due to inadequate training in survival at sea, fire fighting techniques, and in the use of navigational instruments.

9. However, 82% of the active seafarers in Türkiye are ratings commencing work with inadequate training in maritime safety subjects and, in general, maritime education.

10. The lack of this type of training for the Turkish seafarers constituted a challenge for the marine environment when casualties were caused by inadequate safety training of personnel on board, resulting in oil spills and other potential hazards of marine pollution.

11. Thus, a 3 year UNDP/IMO Maritime Safety Training Centre (MSTC) project of Türkiye was commenced in ITU, Maritime Faculty (ITUMF) Tuzla Campus under the National Project Co-ordinatorship (NPC) of Professor Dr Osman K. SAĞ in 1993.

12. Immediate objective of the project was the development of national capability for the training of seafarers in maritime safety and other maritime specialized operational skills to enhance maritime safety and efficiency in accordance with the STCW 78/95 Convention. Therefore, a National Maritime Safety Training Centre was planned to be established in the Tuzla Campus of ITUMF by January 1996 with a capacity to provide basic training in fire fighting, survival at sea, first aid, etc. to no less than 400 seafarers per year in compliance with such international standards.

13. The moderate US\$400,000 initial budget for the project has been utilized in co-operation with the reputation and respectability of UNDP/IMO as seed money to attract a total of another US\$4,150,000 worth of

national/international investment to the project to finance the establishment of

- 1 olympic indoors training survival/swimming pool;
- 2 closed survival craft platform;
- 3 fire-fighting training center;
- 4 first aid instruction center;
- 5 administration building of MSTC;
- 6 ARPA-RADAR simulator laboratory;
- 7 GMDSS laboratory;
- 8 maritime library;
- 9 guest houses for seafarers;
- 10 living accommodation for foreign visitors; and
- 11 2 minibuses, and 1 minibus transportation services

14. NPC of MSTC, also as the Acting Dean of the ITUMF, utilized the international experience gained in the past 3 years through IMO and UNDP to upgrade all the undergraduate curriculum of maritime education in Türkiye in 1995 to a much higher standard required by STCW 78/95 and IMO model courses 7.01-7.04. Also postgraduate studies in Türkiye have been initiated for the first time at ITUMF during this period. Also a maritime junior college for 2 years has been established in connection with ITUMF.

15. Forty IMO model courses have been translated into Turkish to be utilized as instruction material and 65% (30) of the total 46 full-time staff members of ITUMF/MSTC have gained international instructing experience in different fields of maritime education, during the last 3 years in countries like the USA, the United Kingdom, Japan and Italy.

16. Thus ITUMF/MSTC, the sole maritime education centre of Türkiye at all levels of competency, has emerged to be a "Centre of Excellence" in maritime training and education at IMO standards with a drastically increased capacity of 12,500 seafarers per year as opposed to the originally planned figure and capacity of 400 seafarers per year.

17. Towards the end of the project it was concluded that the centre can be organized to give maritime education not only to Turkish seafarers but, through MSTC instructors with

good command of the English language, to international seafarers as well, especially from the Black Sea Economical Co-operation (BSEC) countries in the form of a reputable recognized international centre of excellence in maritime training. At the moment pilot training is given to international seafarers from Bulgaria, Romania, Croatia, and Yugoslavia. This number can easily be increased to cover seafarers from other countries.

18. As the sole centre of excellence of Türkiye in maritime education approved by IMO, the institution is there to train and certificate at international standards on behalf of the Prime Ministry - Under Secretariat for Maritime Affairs of Türkiye. Thus, the ultimate goal being highly educated seafarers to minimize marine accidents and vastly contribute towards the protection of the marine environment especially in the vulnerable Black Sea, Mediterranean and Aegean Seas.

19. The centre is unique in the sense that it is situated at the campus of the only Maritime Faculty of Türkiye. The 67,000 m² campus with 45 buildings hosts 690 cadets - all boarding with uniforms, providing 5 years of education (one year English only) after high school with four departments (Deck, Engine, Marine Transportation - Administration and Basic Sciences).

C) OTHER SECTORAL ACTIVITIES OF ITU, MARITIME FACULTY -

Consultancy work to Prime Ministry, Undersecretariat for Maritime Affairs is provided regarding the preparation of the National Legislation for STCW 95 which is due to be in effect commencing on February 1, 1997.

Representation of Türkiye at international platforms such as IMO Meetings on behalf of the Ministry of Foreign Affairs, and Undersecretariat of Maritime Affairs is always carried out by the Dean, and the staff members of ITU, Maritime Faculty.

Very recently IMO General Secretary Mr. O'Neil personally designated Prof. Dr. Osman K. SAĞ (Dean) and Captain Teoman

AKIN from ITU Maritime Faculty of Türkiye as members of the International Team of Competent Persons to control the administrations of Parties to IMO regarding their application of the new rules and regulations of STCW '95 according to Chapter I - Regulation I/7 commencing on August 1998.

12. CERTIFICATION SYSTEM FOR THE TURKISH SEAFARERS -

Certificate Exams for Seafarers at all levels of Competency is carried out by ITU, Maritime Faculty by the authorization of the Administration which is Prime Ministry, Undersecretariat for Maritime Affairs in Türkiye.

The existing Certification System of STCW 78 is shown in **FIGURE 1**.

The Certification System of STCW 95 which will be in effect commencing on February 1, 1997 is shown in **FIGURE 2**.

13. THE SHORT / LONG TERM GOALS OF ITU, MARITIME FACULTY -

In the past four years, the ITU, Maritime Faculty has been transformed from a modest Maritime College into one of the top Maritime Faculties of Europe and Mediterranean Region.

The ITU, Maritime Faculty owes this success to the following boundary conditions :

1. Successful promotion and advertisement of the ITU, Maritime Faculty among the High School graduates, and excellent job prospects provided resulted in excellent quality of students starting to prefer and being admitted to ITU, Maritime Faculty.
2. The high quality of the Staff Members recruited in the last 4 years contributed vastly to the success.
3. More expensive in terms of Turkish Standards but the unique education system followed, and the updated curriculum of STCW 95, and emphasis on Maritime English language

4. Cooperation with UNDP/IMO - The Marine Safety Training Center Project of Türkiyewithin the Tuzla Campus.
5. Investment towards the basic facilities of the Faculty with the support of Maritime Undersecretariat, the Maritime Sector, the Alumni, ITU Rectorate and the Local Administration of TUZLA.
6. Careful planning, organization and very very hard WORK, and patience.
7. International experience acquired by the Deans Office in Maritime Education.

Since 1995, ITU Maritime Faculty is going through a rather difficult transition period with limited budget, and decreased funds from the Government due to changes in the overall Maritime policy of Türkiye and the privatization of a number of State Maritime Institutes, the candidates as employment suppliers of the Faculty.

The ITU, Maritime Faculty is searching for urgent and new solutions to continue the successful but comparatively expensive system of education that brought him International recognition in the past 4 years.

The average University Education cost per student per year in Türkiye is around \$3,500- \$4,000 for the University. Due to the unique education of ITU, Maritime Faculty, this figure is around \$7,000 - \$7,500 per year.

In the past 2 years, Government can only allocate 25-28% of the above figures, but ITU, Maritime Faculty with a lot of sacrifice and devotion continued the successful system.

The first priority of ITU, Maritime Faculty is to seek for and find National / International sponsors for the very bright cadets in the Faculty which automatically will yield to good, and guaranteed job prospects for the graduates, and very able talented officers for the sponsors.

Shipowners of course have the choice of concentrating more on less expensive, and modestly (poorly) educated cadets of other Turkish Maritime Institutes the graduates of which have not been tried yet. But international similar experience very well denotes that, developed countries of the world are starting to

prefer much better educated officers of nations still rather economical in terms of international standards such as Türkiye, Croatia, Poland though expensive compared to less expensive and poorly educated officers of some far Eastern Countries in the last few years.

In the short term, if the laboratory facilities of ITU, Maritime Faculty can be updated to international standards, with the above described potential already acquired, it will be one of the best Maritime Training Institutes of the world.

Again, in the short term with national / international investment and sponsorship to the ITU, Maritime Faculty capacity of cadets admitted can be increased in a planned schedule to yield fruitful results for both the sponsors and the extremely well educated officers graduating from the Faculty.

Thus ITU, Maritime Faculty providing the well capacity of officers and proven system of education, and International / National sponsors providing sponsorship for the maintenance of this Internationally reputable institution; great valuable service in terms of excellent human resources education towards Maritime Sector of the world can very well be achieved.

IMO COMPENDIUM
OF
**MARITIME
TRAINING
INSTITUTES**



INTERNATIONAL MARITIME ORGANIZATION

ANNEX 1

GENERAL INFORMATION

Country	Institute Number	Institute Name	STCW Ratification	Type of Institute	Language	No. of Full-Time Lecturers	No. of Part-Time Lecturers	Max. No. of Candidates	Availability of Accommodation	Availability of Meals	Overseas Candidates	Basic Progs. Leading to DO W/K Cert.	Basic Progs. Leading to EO W/K Cert.	Upgrading Courses Leading to DO Certs.	Upgrading Courses Leading to EO Certs.	Availability of Short Courses	Availability of Ratings Courses
SWEDEN	316	Kalmar University, Kalmar Maritime Academy	*	G	Sw	20	4	450				*	*	*	*	*	
	317	Sjöfartens Brandskyddskomitee Swedish Maritime Fire Protection Committee	*		Sw /E												*
THAILAND	318	Merchant Marine Training Center	*	G	Th	25	63	120	*	*		*	*			*	*
TONGA	319	Tonga Maritime Polytechnical Institute	*	G	E/T0	15	4	112		*	*	*	*	*	*	*	*
TUNISIA	320	Academie Naval	*	G	F/E /A			15	*	*	*	*	*	*	*	*	*
	321	Ecole de la Marine Marchande	*	G	F/A			120	*	*	*	*	*	*	*	*	*
TURKEY	322	Anatolia Maritime High School	*	G	E/T				*	*	*	*	*			*	
	323	Dokuz Eylul University Institute of Marine Science and Technology	*	G	E/T				*	*	*					*	
	324	Faculty of Naval Architecture & Ocean Engineering - Istanbul Technical University	*	G	E	29		500		*	*		*		*	*	*
	325	Maritime Faculty - Istanbul Technical University	*	G	E/T	52	51	1000	*	*	*	*	*	*	*	*	*
TUVALU	326	Tuvalu Maritime School	*	G	E	8	3	60	*	*	*					*	
UKRAINE	327	Odessa State Marine Academy	*	G	U/R	361	43	2500	*	*	*	*	*	*	*	*	*

TRAINING FACILITIES

Country	Institute Number	Institute Name	Ship Handling Sim.	Engine Room Sim.	Radar Sim.	ARPA Sim.	Tanker Sim.	Planetarium	Electronic Nav. Lab.	Seamanship Lab.	Meteorological Lab.	Refrigeration Lab.	Auto. Control Lab.	Electronic Lab.	Language Lab.	Communications Lab.	Computer Lab.	Physics Lab.	Chemistry Lab.	Fire-fighting Trg. Facilities	Survival Trg. Facilities	Marine Pollution Prev. Trg. Facilities	Engineering Workshop	Diesel Power Plant / Workshop
SWEDEN	316	Kalmar University, Kalmar Maritime Academy	*	*	*	*			*			*	*	*	*	*	*	*	*	*				*
	317	Sjöfartens Brandskyddskomitee Swedish Maritime Fire Protection Committee																						
THAILAND	318	Merchant Marine Training Center			*				*	*				*	*		*	*	*	*	*		*	
TONGA	319	Tonga Maritime Polytechnical Institute								*	*			*	*		*	*	*	*	*	*	*	*
TUNISIA	320	Academie Naval	*	*	*			*	*	*	*	*	*	*	*		*	*	*	*	*		*	*
	321	Ecole de la Marine Marchande							*	*	*	*	*	*	*	*	*	*	*	*	*		*	*
TURKEY	322	Anatolia Maritime High School			*	*			*	*	*			*	*	*	*	*	*	*	*		*	*
	323	Dokuz Eylul University Institute of Marine Science and Technology							*	*	*			*	*	*	*	*	*	*	*		*	*
	324	Faculty of Naval Architecture & Ocean Engineering - Istanbul Technical University															*	*	*	*	*	*	*	*
	325	Maritime Faculty - Istanbul Technical University			*	*			*	*	*			*	*	*	*	*	*	*	*	*	*	*
TUVALU	326	Tuvalu Maritime School							*											*	*		*	
UKRAINE	327	Odessa State Marine Academy																						

ANNEX 3

STUDY PROGRAMMES AND SHORT COURSES

Country	Institute Number	Institute Name	DO W/K Cert. Prog.	EO W/K Cert. Prog.	DO Certs. Upgrad. Progs.	EO Certs. Upgrad. Progs.	Basic Fire-Fighting	Adv. Fire-Fighting	Personal Survival	Search & Rescue	Prof. in Survival	Radar Obs. & Plotting	Radar Simulator	ARPA Simulator	GMDSS Simulator	Med. Emerg. Basic Trg.	Medical Emerg. First Aid	Medical Care	Oil Tanker Fam.	Adv. Oil Tanker Ops.	Chemical Tanker Fam.	Adv. Chem. Tanker Ops.	Liq. Gas Tanker Fam.	Adv. Liq. Gas Tan. Ops.	Basic Stability	Other Courses
			*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SWEDEN	316	Kalmar University, Kalmar Maritime Academy	*	*	*	*								*	*		*			*		*			*	
	317	Sjöfartens Brandskyddskommitté Swedish Maritime Fire Protection Committee					*	*																		
THAILAND	318	Merchant Marine Training Center	*	*		*	*	*	*		*	*	*			*	*		*				*	*	*	
TONGA	319	Tonga Maritime Polytechnical Institute	*	*	*	*	*	*	*		*	*				*	*	*	*		*		*	*	*	
TUNISIA	320	Académie Naval	*	*	*	*	*	*	*	*	*	*	*			*	*	*	*				*	*	*	
	321	Ecole de la Marine Marchande	*	*	*	*										*	*	*	*				*	*	*	
TURKEY	322	Anatolia Maritime High School	*	*					*		*	*			*	*	*	*							*	
	323	Dokuz Eylül University Institute of Marine Science and Technology	*				*		*		*					*	*	*						*	*	
	324	Faculty of Naval Architecture & Ocean Engineering - Istanbul Technical University		*		*																		*	*	
	325	Maritime Faculty - Istanbul Technical University	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
TUVALU	326	Tuvalu Maritime School					*	*	*		*					*	*								*	
UKRAINE	327	Odessa State Marine Academy													*									*	*	

Established in 1980 for raising the standard of participants in the fields of operation, maintenance and supervisory training, clerical and technical training, accounts, purchasing and computer with the collaboration of other institutes to be conducted locally.

SWEDEN

315

Chalmers University of Technology, College of Applied Engineering and Maritime Studies

Box 8873, S-402 20 Goteborg
Sweden

Tel: 46 31 772 1000

Fax: 46 31 772 5767

The College educates engineers, marine engineers and master mariners. Programmes are normally of three years duration and include basic mathematical and natural science courses and courses in relevant areas of technology. The programmes culminate in a degree project. Programmes of marine engineering and master mariners consist of about 300 students.

316

Kalmar University, Kalmar Maritime Academy

Stagneliusgatan 31,
392 34 Kalmar, Sweden
Tel: 46 480 446 000
Fax: 46 480 446 150

317

Sjöfartens Brandskyddskomite (Swedish Maritime Fire Protection Committee)

THAILAND

318

Merchant Marine Training Center

120 Soi Tessaban 6, Sukhumvit
Road, Bangdoun,
Samutprakarn 10270, Thailand
Tel: 66 2 384 7421
66 2 384 7422
Fax: 66 2 384 7063

TONGA

319

Tonga Maritime Polytechnical Institute

P.O. Box 485, Nukualofa, Tonga
Tel: 676 22 667
Fax: 676 22 334

The Institute was established in 1985 through a German aid programme. Instructors were sent to Germany for training in running a marine training school before the official opening of the institute. It offers maritime and shore-based courses. At present the maritime division of the institute is fully funded by the Tongan Government.

TUNISIA

320

Academie Naval

7050 Menzel Bourguiba, Tunisia
Tel: 216 2 460 126
216 2 461 026

This Academy is a military school for navy officers who are taught and trained up to the first level of merchant navy officers (deck and engine).

321

Ecole de la Marine Marchande

Rue Abdellah Ibn Zonbeie,
Sousse, Tunisia
Tel: 216 3 226 365
Fax: 216 3 226 211

TURKEY

322

Anatolia Maritime High School

Ciragan Cad. No. 94/A,
Besiktas, Istanbul, Turkey
Tel: 90 212 261 6303
90 212 261 6304
Fax: 90 212 261 6705
All certificates are restricted.

323

Dokuz Eylul University Institute of Marine Science and Technology (IMST)

1884/8 Sok. No. 10, Inciralti,
35340 Izmir, Turkey
Tel: 90 232 278 5565
90 232 278 5272
Fax: 90 232 278 5082

324

Faculty of Naval Architecture & Ocean Engineering - Istanbul Technical University

Ayazaga Kampusu,
Maslak, Istanbul 80626, Turkey
Tel: 90 212 285 6464
90 212 285 6474
Fax: 90 212 285 6454
Tlx: 28186 ITU-TR

The Faculty offers 4 year courses in naval architecture and ocean engineering leading to B.Sc. degrees of "Naval Architect and Marine Engineering" and "Naval Architect and Ocean Engineering". M.Sc. and B.Sc. courses in above subjects are also offered.

325

Maritime Faculty - Istanbul Technical University (ITU)

ITU Denizcilik Fakultesi,
Tuzla, Istanbul 81716, Turkey

Tel: 90 216 395 1000
Fax: 90 216 395 4500
Tlx: 28186 ITU-TR

The only maritime faculty in Turkey - 5 years after high school. 750 cadets, all boarding with uniforms. Four departments (deck, eng., marine transportation & administration, basic sciences) Also serves as the Marine Safety Training Centre of Turkey on behalf of the Ministry of Maritime Affairs

TUVALU

326

Tuvalu Maritime School

Amatuku, Funafuti, Central Pacific, Tuvalu
Tel: 688 20849
Fax: 688 20832

The Tuvalu Maritime School offers pre-sea training for young men seeking employment in international shipping as deck, engine room or catering ratings. The school also offers upgrading courses for experienced seamen leading to the award of AB's, motor men and qualified steward certificates.

UKRAINE

327

Odessa State Marine Academy

8 Didrikhson Street, Odessa, Ukraine
Tel: 7 482 234 178
Fax: 7 482 234 178
Tlx: 232194 OCEAN

The Academy was founded in 1944. It has 9 faculties, 37 chairs, 4 training vessels and 1 sailing ship. It trains up to the 4th (the highest level in Ukraine) level in the training of specialists and its enrolment comes from more than 50 countries worldwide

UNITED KINGDOM

328

Aberdeen College

Gallowgate Centre, Gallowgate, Aberdeen AB9 1DN, UK
Tel: 44 1224 640 366
44 1224 612 154
Fax: 44 1224 647 178

329

Cambridge Academy of Transport

48 Whittlesford Road, Little Shelford, Cambridge CB2 5EW, UK
Tel: 44 1223 845 242
Fax: 44 1223 845 582
Tlx: 94012248 CATS G

The Academy organises short intensive courses for middle to senior managers in the shipping industry. The courses are largely concerned with the commercial aspect of the business and attract a broad spectrum of company interests including shipowners, operators, charterers, shippers, consignees, banks, shipyards, lawyers and governments

330

Glasgow College of Nautical Studies

21 Thistle Street, Glasgow, G5 9XB, Scotland, UK
Tel: 44 141 429 3201
Fax: 44 141 420 1690

Glasgow is the largest ship-management centre in Europe. Recognising this, the college maintains a high profile in the development and maintenance of a comprehensive breadth of maritime education and training to meet the needs of the industry. It has an international reputation and overseas students are particularly welcome.

331

Institute of Marine Studies - University of Plymouth

Drake Circus, Plymouth, Devon, PL4 8AA, UK
Tel: 44 1752 232 410
Fax: 44 1752 232 406

The Institute offers graduate and postgraduate programmes in Marine Science, Navigation, Hydrography, Technology and Business.

332

Institute of Maritime Law - University of Southampton

University Road, Highfield, Southampton SO17 1BJ, UK
Tel: 44 1703 593 449
Fax: 44 1703 593 789

The Institute is the largest centre in UK for the study of maritime law and for teaching, research and consultancy in the subject. It was founded in 1982 to give focus to an existing interest in maritime and shipping law.

333

Jewel & Esk Valley College

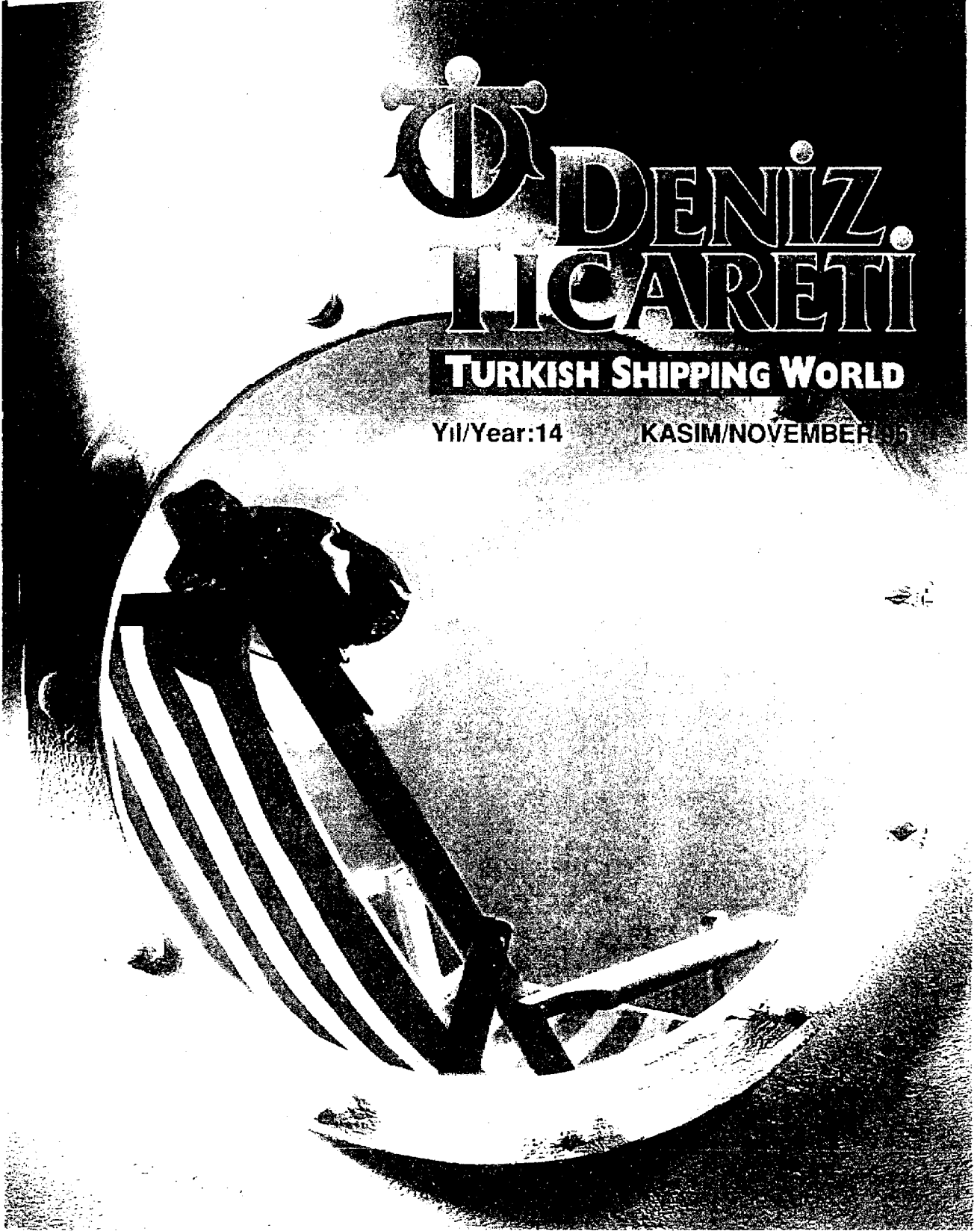
24 Milton Road East, Edinburgh, EH13 0AT, Scotland, UK
Tel: 44 131 657 7241
Fax: 44 131 657 2276

334

Kilkeel College of Further Education

Greencastle Street, Kilkeel, Northern Ireland, UK
Tel: 44 16937 62582
Fax: 44 16937 65975

A local F.E. college offering full time courses to the local fishing industry.



İTÜ Denizcilik Fakültesi'nin Uluslararası Konumu

International Status of The Maritime Faculty of Istanbul Technical University

Prof. Dr. Osman Kamil Sağ*

İTÜ Denizcilik Fakültesi'nin mezunlarına verilen ehliyetler Fakülte'nin verdiği lisans diplomasından ayrı belgeler olup, yakın bir tarihe kadar gerek Fakülte'nin lisans ders programları, gerekse de ehliyet için yapılan sınav, YÖK kurulları ve ulusal yönetmeliklere göre düzenlenmekte idi.

Diğer taraftan "International convention on standards of training, certification, and watchkeeping for seafarers, 1978" - Gemi adamlarının eğitimi, belgelendirilmesi ve vardiya tutma esaslarını standart hale getiren uluslararası sözleşme; IMO Genel Kurulu'nda kabul edilen 15 Ekim 1978 tarihli karar uyarınca, 14 Haziran - 7 Temmuz 1978 tarihleri arasında Londra'da 73 ülkenin katılımı ile düzenlenen uluslararası konferansla kabul edilmiştir. 28 Nisan 1984 tarihinde yürürlüğe giren sözleşmeye taraf ülkeler, sözleşmenin X. maddesi gereğince uygulanıp, uygulanmadığı konusunda kontrol etmeye başlamışlardır.

STCW-78 Konvansiyonu'nun ilk amacı, dünyadaki bütün denizcilerin bu sözleşme kurallarına uygun ve standart bir şekilde eğitilmelerini sağlamaktır. İkinci amaç gemiadamlarına verilecek sertifikaları (ehliyetleri) standart hale getirmektir. Üçüncü amaç ise, vardiya tutma esaslarını da standartlaştırarak, denizlerde güvenliği ve emniyeti artırıcı rol oynamaktır.

Uluslararası STCW-78 sözleşmesinin bu üç ana amacından da anlaşıldığı gibi sözleşmeye taraf ülkeler artık gemiadamlarının eğitimi ve belgelendirilmesinde özgür değildir. Gemiadamlarını uluslararası statüde eğitimin ve belgelendirmenin gereği ise çok açıktır. Gemileri yöneten gemi adamlarının yanlış uygulamalarından, sadece kendi ülkeleri ve kendi gemileri değil, diğer ülkeler ve diğer gemiler de etkilenmektedir. Daha da önemlisi, günümüzde denizlere olan ilgi ve denizlerden beklenen çıkarlar, dünyanın bütün ülkeleri için çok önemlidir.

İşte bu nedenlerle, dünya denizlerinde gemi dolaştıran gemiadamlarını belli bir standartla eğitmek ve belgelendirmek zorunluluk haline gelmiş ve STCW-78 Konvansiyonu imzalanmıştır.

Türkiye bu konvansiyona katılmayı, Nisan 1989 tarihinde Türkiye Büyük Millet Meclisi'nde kabul edilen 3539 sayılı yasa ile benimsemiş olmasına rağmen, IMO'ya katılma başvurusu 22 Temmuz 1992 tarihinde yapılmıştır. Başvuru IMO Genel Kurulunda 28 Ekim 1992 tarihinde kabul edilmiş ve Türkiye'ye konvansiyonun gereklerini yerine getirmek için 28 Ekim 1997 tarihine kadar 5 yıllık geçiş süresi tanınmıştır.



The certificates granted by the Maritime Faculty of Istanbul Technical University to its graduates is different from the bachelor diploma conferred by the faculty and the bachelor course curriculum of the faculty and the examination held for obtaining license were arranged according to the rules of Higher Education Board and the international regulations. On the other hand "International convention on standards of training, certification, and watch keeping for seafarers, 1978" was adopted in an international convention attended by 73 countries, which was held in London between June 14 and July 7, 1978 pursuant to the resolution of October 15, 1971 adopted in the General Assembly meeting of IMO. The countries, which signed the said convention, which came into effect on April 28, 1984 have begun to be watched whether they implement the convention or not, pursuant to article X of the convention.

The first aim of the STCW-78 Convention is to ensure the giving of a standard training for all seafarers around the world in comply with the rules of the Convention. The second aim is to standardize the certificates to be granted to the seafarers. The third aim is to standardize the rules, applicable to watch-keeping to improve the safety and the security at sea. As understood from these three aims of the STCW-78 convention, countries signing the convention are no longer at liberty with a view to the training and certification of the seafarers. The reason of training and certifying the seafarers to the international standards is quite obvious: Faulty practices of the seafarers who manage the ships, affect not only their countries and their own ships, but also other countries, and other ships. More importantly, the interest in the sea and the benefits expected from the sea are much more important for all countries of the world today. For such reasons, to educate, train and certify the seafarers, who navigate their ships at world seas, according to certain standards have become a must, and the STCW-78 has been signed.

Although Türkiye adopted this convention in the Turkish Grand National Assembly with Law No. 3539 of April 1989, the application to join IMO was made on July 22, 1992. This application was approved in the General Assembly meeting of IMO on October 28, 1992. Türkiye was allowed a transition period of 5 years, that is until October 28, 1997, to fulfill the requirements of the convention. Until this date, the marine training curriculum has to be complied to the standards of the convention, the existing seaman certificates have to be re-arranged in accordance with the standards of the convention and any amendment, must be informed to and approved by the General Secretary of IMO.

The relevant rules of the convention which will be applied to our sea

Bu tarihe kadar denizcilik eğitim programlarının sözleşme standartlarına uydurulması, mevcut denizci ehliyetlerinin sözleşme standardında yeniden düzenlenmesi ve yapılan değişikliklerin IMO Genel Sekreterliği'ne bildirilerek onaylanması gerekmektedir.

28 Ekim 1997 tarihinden itibaren denizcilerimize uygulanacak olan konvansiyonun ilgili kuralları, bu konvansiyona uyulmadığı takdirde, gemilerin seferden alınmasına kadar, liman devletlerine birçok yetkiler vermiştir. Eğer Türkiye'nin taraf olduğu bu konvansiyonun gerekleri zamanında yapılmazsa, bunun sonucu olarak ormatörlerimiz büyük zararlara uğrayacak, denizcilerimiz ise işsiz kalacaklardır.

Türkiye denizcilik lisans eğitiminde STCW 78 kurallarına uyabilmek için İTÜ Denizcilik Fakültesi olarak IMO yayınlarını referans alıp 1995-1996 eğitim - öğretim yılı itibarı ile bütün lisans programlarını değiştirerek akredite olmuştur. Ayrıca 1993-96 yılları arasında BM - IMO Projesi ile İTÜ Denizcilik Fakültesi Tuzla Kampüsü'nde kurulan ve uluslararası denizcilik eğitiminde "Mükemmeliyet Merkezi" olarak onaylanan T.C. Deniz Güvenliği Eğitim Merkezi'nde, 1 Ocak 1996 tarihi itibarı ile Başbakanlık Denizcilik Müsteşarlığı adına çeşitli Uluslararası Sertifika kursları, Ehliyet Kursları düzenlemeye ve Sınava yapmaya yetkili kalmıştır.

Ancak son yıllarda insan hatasından kaynaklanan deniz kazalarının artması sonucu, dünya devletleri Haziran 1995 tarihinde Londra'da IMO Merkezinde toplanarak kuralların çok daha sıkılaştırıldığı, denetimin arttığı, STCW 95 Konvansiyonu'na imza almışlardır. Buna göre yeni konvansiyon hükümleri sözleşmeye taraf olan her ülkede 1 Şubat 1997 tarihinden itibaren uygulanmaya başlayacaktır. Uygulamanın her koşulunun sağlanması 1 Şubat 2002 tarihine kadar gerçekleştirilecektir.

Her ülkenin ilgili bakanlığı, denizcilik eğitim kuruluşlarını ve armatör şirketlerini, görevlendireceği bir kuruluşça tarif edilmiş bir kalite kontrol sistemi çerçevesinde ziyaret edip inceleyecek ve denetleyecektir. Toplanan formlar 1 Ağustos 1998 tarihine kadar IMO Genel Sekreteri'ne topluca uluslararası denetim için sorulacaktır.

Genel Sekreter, devletlerüstü, değişik ülkelerden seçtiği 30 kadar danışmanını 5'er kişilik komiteler halinde örgütleyip, ülkelerin kendisine sunduğu raporları incelemesini isteyecektir. 5'er kişilik uluslararası heyet denetimden geçen ilgili ülkenin temsilcisini Londra'ya davet edip açıklama isteyecek, talmin olmazsa ülkeyi ziyaret edip kuruluşları bizzat kontrol edecektir.

Seçilen 30 danışmanın çoğunluğu ABD, Rusya, Kanada, İngiltere vs. gibi gelişmiş ülkelere mensup kişiler olurken Genel Sekreter, Türkiye'den de İTÜ Denizcilik Fakültesi'nden iki öğretim üyesini bu devletlerüstü denetim görevi için bizzat seçmiştir. Fakülte Dekanı Prof. Dr. Osman Kamil Sağ ve Öğretim Görevlisi Kaptan Teoman Akin, Genel Sekreterce IMO'ya "Competent Person" seçilen kişilerdir. Bu çok

afacers from October 28, 1997 have granted many powers and authorities to the harbor states, so that a harbor state may arrest a ship if the convention is not complied with. If Türkiye fails to fulfill the requirements of this convention on time, our ship owners will suffer substantial losses and our seafarers will lose their jobs.

To comply with the rules of STCW-78 convention in marine bachelor education, Istanbul Technical University changed its all bachelor curriculum by taking the publications of IMO as reference as of 1995-1996 academic term, and it has been accredited. In addition, Istanbul Technical University has been authorized to organize various International Certification courses and hold examinations on behalf of the Prime Ministry the Under-secretariat of Maritime Affairs in the Turkish Republic Marine Safety Training Center, which was established in Tuzla campus of the Faculty and approved as the "Center for Perfection" in the international marine education under the UN - IMO Project implemented between 1993 and 1996.

However, as the number of collisions at sea caused by human error increased during the recent years, the world states met in the IMO headquarters in London in June 1995 and signed the STCW-95 convention which brings more strict rules and more strict control over the implementation of the convention. Pursuant to the new convention, the rules of the convention will be applied in all countries signing the convention from February 1, 1997. Compliance with all terms and conditions of the convention will be completed until February 1, 2002. Relevant ministry of each country will visit and inspect the marine education institutions and shipping companies within the framework of a quality control system defined by an institution designated by the ministry. The collected forms will be submitted to the General Secretary of IMO until August 1, 1998 for an international inspection.

The General Secretary will establish inspection committees among his/her 30 advisors elected from different countries. Each committee will have a sur-government status and be formed by 5 members. The committees will examine the reports submitted to the General Secretary. The committees will invite the representative of the relevant country which passed the inspection to London and ask for an explanation from this representative. If not satisfied with the explanation of the representative, the committee will visit that country. While the majority of the 30 advisors are from developed countries such as USA, Russia, Canada, England etc., the General Secretary has himself appointed two lecturers from the Maritime Faculty of İTÜ as advisors for this sur-governmental inspection task. The Dean of the Faculty Prof. Dr. Osman Kamil Sağ and Lecturer Captain Teoman Akin are "competent persons" appointed by the General Secretary to IMO. The assignment of this very honorable duty is the result of the good performance of the Maritime Faculty of İTÜ in the international scale during the last 4 years and its successful and productive performance in the establishment of the Turkish Republic Marine Safety Training Center.

In these days when the accreditation has just begun to draw interest

onurlu görevin verilmesi İTÜ Denizcilik Fakültesi'nin son 4 yılda gösterdiği uluslararası performans ve TC Deniz Güvenliği Eğitim Merkezi'nin kuruluşundaki başarılı ve verimli çalışmasının sonucudur.

Akreditasyon olayının Türkiye'de diğer bilim dallarında yeni gündeme geldiği şu günlerde maalesef TBMM, Üniversitelerarası Kurul ve YÖK, denizcilik eğitimindeki bu çok çağdaş gelişmelerden, Başbakanlık Denizcilik Müsteşarlığı ve Dışişleri Bakanlığı ile iletişim yetersizliğinden zamanında bilgilendirilmemekte ve çok kısa gelecekte akredite olması imkansız kuruluşların denizcilik fakültesi ve bölümleri, anabilim dalları olarak eğitime başlamasına izin vermekte ve Türkiye 1 Ağustos 1998 tarihinden itibaren uluslararası denizcilik platformlarında çıkmaza sürüklenmektedir.

Zira bu tarihte laboratuvarı, simülatorü bulunmayan, öğretim elemanı gerekli koşulları sağlamayan, lisans programı akredite olmayan, gerekli kalite kontrol esaslarını yerine getirmeyen, gelişigüzel, rastgele kurulmuş denizcilik lisans yüksek eğitim kuruluşları uluslararası denetime takılacak ve bundan bütün Türkiye zarar görecektir, IMO'nun kara listesinden çıkamayacak, licaret filosu ve gemi adamları Çanakkale Boğazı'ndan dışarda Liman Devlet Kontrolörlüğüne alınacak, büyük para cezaları ödeyecektir.

İTÜ Denizcilik Fakültesi ve bünyesinde kurduğu T.C. Deniz Güvenliği Eğitim Merkezi, uluslararası akredite bir kuruluştur. Uluslararası saygınlığı vardır. IMO tarafından yakinen tanınmaktadır ve bu nedenle Dekan ve Öğretim Elemanına çok onurlu bir görev verilmiştir.

Bundan böyle TBMM, Üniversitelerarası Kurul ve YÖK'ün, İstanbul Teknik Üniversitesi Denizcilik Fakültesi'nce bilgilendirilmeden kesinlikle gerekli uluslararası standartları sağlamayan yeni denizcilik eğitim kuruluşlarının açılmasına izin vermemesi; İTÜ Denizcilik Fakültesi dışındaki kuruluşların ise sıkı denetimden geçirilmesi için Başbakanlık Denizcilik Müsteşarlığı ile temasa geçerek, tek akredite kuruluş İTÜ Denizcilik Fakültesi'nin uluslararası danışmanlarını ulusal olarak da denetimde yardımcı olarak görevlendirmesi ve birikimlerinden yararlanması, Türkiye'nin çıkarları açısından son derecede lüzumlu olacaktır.

İTÜ Denizcilik Fakültesi Öğretim Üyeleri 1 Şubat 1997 de yürürlüğe girecek STCW 95 Konvansiyonu'na uygun yeni Gemiadamları ve Sınav Yönetmeliğini hazırlayarak, Başbakanlık Denizcilik Müsteşarlığı ve ilgili komisyonların görüşüne arz etmiştir.

TÜDEV ve DTO bu çok önemli konuda büyük hassasiyet göstermekte olup, Temmuz ve Ekim 1996 tarihlerinde kamuoyunu aydınlatılmak üzere iki seminer düzenlemiş, ayrıca İTÜ Denizcilik Fakültesi uluslararası danışmanlarının IMO'da yapılan her toplantıda Dışişleri Bakanlığı adına Türkiye'yi temsil edebilmesi için maddi destekte bulunarak, üzerlerine düşen sektörel görevi fazlasıyla yapmışlardır.

İTÜ Denizcilik Fakültesi Dekanı

in other science branches in Türkiye, the Turkish Grand National Assembly, the Inter-university Board and the Higher Education Board are not been informed about the recent modern developments in the marine education due to poor communications with the PM Under-secretariat of Maritime Affairs and the Foreign Ministry, and marine faculties and departments of some higher education institutions, which cannot be expected to be accredited in such a short time, are allowed to be opened as main science branches, and Türkiye will drift toward a bottleneck in the international marine platforms from August 1, 1998.

Because, from that day on, those marine education institutions of bachelor degree which do not have laboratory and simulator, cannot employ lecturers who are comply with certain standards, do not apply non-accredited bachelor course program, cannot fulfill the required quality control procedures will fail in the international inspection, Türkiye will wholly suffer from this failure and be included in the black list of IMO, merchant fleet and seafarers of the country will be retained by Harbor States outside the Çanakkale Straits, and they will have to pay substantial fines.

The Turkish Republic Marine Safety Training Center established by the Maritime Faculty of the Istanbul Technical University is an internationally accredited institution. It has achieved an international respect. It is well-known by IMO, and it is because of this that the Dean and the lecturer of the Faculty have been appointed by the General Secretary to this very honorable duty.

From now on, the Turkish Grand National Assembly, the Board of Inter-university and the Higher Education Board must not give permission for the opening of new marine education institutions which are not in comply with the international standards without being informed by the Maritime Faculty of the Istanbul Technical University. The PM Under-secretariat of Maritime Affairs must appoint and take benefit from the experiences of the international advisors of the Maritime Faculty of İTU to assist in the inspections to be held across the country for strict inspection of marine education institutions outside the Maritime Faculty of İTU.

The lecturers of the Maritime Faculty of İTU have prepared the new Seafarers and Examinations Regulations which is in comply with the STCW-95, which will be effective from February 1, 1997, and submitted to the approval of the PM Under-secretariat of Maritime Affairs and the relevant commissions. The Turkish Maritime Education Foundation (TÜDEV) and the Shipping Chamber (DİO) are very sensitive in this very important matter. They have organized two seminars on July and October 1996 to give information to the public. In addition, they have fulfilled their sectoral duty in excess by providing financial support to enable the international advisors of the Maritime Faculty of İTU to represent Türkiye in each meeting of IMO on behalf of the Foreign Ministry.

* The Dean of the Maritime Faculty of İTU

APPENDIX 4

CURRICULUM VITAE PROF.DR. OSMAN KAMİL SAĞ

Professor Dr. OSMAN KAMİL SAĞ has been appointed as the founding Dean of the Maritime Faculty of Istanbul Technical University in 1992. He has been reappointed for a second term in office as Dean in 1995 for a period of 3 years.

Professor Dr. OSMAN KAMİL SAĞ has served as the Vice Dean of the Faculty of Naval Architecture and Ocean Engineering, Istanbul Technical University during 1982-92 for 4 terms, and has also been the founder and Head of the Marine Engineering Division of this Faculty during 1989-92.

Prof. SAĞ was born in İZMİR in 1949. He has graduated from Mac Arthur High School in Decatur, Illinois USA in 1967. He has received his B.Eng. Degree in Mechanical Engineering at Robert College, Istanbul in 1971. Prof. SAĞ has received his M.Eng Degree from the Faculty of Mechanical Engineering of Liverpool University, England in 1973 specializing in Marine Engineering, and his PhD Degree in 1977 in the same field and University.

He has joined the Faculty of Naval Architecture of Istanbul Technical University as a Research Assistant in 1978. He was promoted to Assistant Professorship in 1981. He has submitted his Habilitation Thesis, and was promoted to Associate Professorship in 1983. He was promoted to Full Professorship in 1988.

Prof. SAĞ had his long term sabbaticals as an invited postdoctoral Research Fellow to HANNOVER (Germany) and TRONDHEIM (Norway) Universities in 1979 and 1981.

Prof. SAĞ is the original Designer of two Diesel Engine Thermodynamical Simulation Software programs for Bergen Diesel Engine Factory of Norway (1981), and ARAI of India (1995).

Prof. SAĞ has a total of 66 publications 48 of which are in English, and were published in USA, United Kingdom, Germany, Norway, Italy, Greece, Bulgaria, Peoples' Republic of China, Romania, Croatia and Turkey. He has published two text books one of which is in English.

He served as the Project Manager of ITU in an International Research Collaboration with MTU - Friedrichshafen Research and Development Center during 1990-92. Prof. SAĞ is the Acting National Project Co-ordinator of the United Nations Development Programme, Maritime Safety Training Centre for the Government of Turkey (1993-96).

Prof. SAĞ is the founder of 4 Departments, 7 Divisions, and the new Undergraduate curriculum of the Maritime Faculty satisfying STCW 78/95. He has commenced Postgraduate Education for the first time in Maritime Faculty. He is the founder of the Maritime Library, the Internet System and 6 new Laboratories in the Faculty including the sole GMDSS, ARPA-RADAR Laboratories of TURKEY. He is also serving as the Acting Principal of ITU Maritime College and the Head of Department of Marine Engineering at the Faculty. He is the Consultant of Maritime Education in Turkey for Prime Ministry, Undersecretariat of Maritime Affairs, and delegate for Turkey at IMO. He is a member of the Scientific Editorial Board and Executive Committee of a number of International Maritime Organizations.

Prof. SAĞ contributed vastly towards acquiring the very first Training Vessel according to STCW '95 regulation of the ITU Maritime Faculty, namely M/S AKDENİZ in 1997.

Prof. SAĞ speaks fluent English, and fair German. He is unmarried with two sons of 17 and 13 years old.

資料 4 クエスチョネアー

(1) クエスチョネアー第1回 (ITUMF)

Questionnaire

1 .Position of the project in the national development plan.

(1)Please explain the outline of "Turkey 5years Development No.7th Plan".

(2)Please explain the national policy and the future plans on marine
[including the relevant statement in "Turkey 5years Development No.7th Plan" and the
relationship between Black Sea Economical Cooperation(BSEC)]

(3)Please provide information on various economic and industrial indicators and the
shares occupied by marine transportation and seamen.
(Provide data of the last 5 years.)

(4)Please provide information on labor situation (such as working population by field,
unemployment rate, and average salary by occupation).
(Provide data of the last 5 years.)

(5)Please explain what effects (such as expected benefits, employment promotion
effects, self-help effects, and secondary effects) are expected by implementing the
project.

2 .Current status of Turkish marine transport.

Please provide information on the following items :

(1)Ocean-going ships of Turkish registry.
(vessel types, number of vessels, gross tonnage).
(Provide data of the last 5 years).

(2)Total volume of international trading, volume of international trading by marine
transportation, loading percentage of ships of Turkish registry.
(Provide data of the last 5 years).

(3)Information on ships other than ocean-going ships.
(such as coastwise vessels, fishing boats, and work barges).
(Provide data of the last 5 years).

(4)Information on major ports and their facilities.
(such as mooring capacity and support facilities).

(5)Organization in charge of marine transport administration.
(such as an organization chart of the competent authorities, division of roles, brief
description of services and operation)

3 .Current status of Turkish Seamen.

Please provide information on the following items :

- (1)Overview of seaman registration system
(such as competent authorities. contents of registration, and registration procedure)
- (2)Number of registered seamen
(Number of seamen by occupation, by qualification. etc.)
(Provide data of the last 5 years.)
- (3)Number of seamen aboard ships of Turkish registry and the percentage of Turkish seamen (by occupation)
- (4)Number of Turkish seamen aboard ships of the foreign country registry and the percentage of their occupation
- (5)Overview of seamen's competence qualification system
(types of seamen 's competence qualifications, applicable ships and sea areas by qualification)
- (6)Are foreign seamen's competence qualification acknowledged in Turkey? (Explain the relationship between foreign and Turkish seamen's competence qualification.
[For reference information, foreign seamen's competence qualifications are not acknowledged in Japan.]
- (7)Overview of seamen's competence qualification examination system
(organization in charge of examinations, subjects and methods of examinations [For reference information, written, oral, and health examinations are given in Japan])
- (8)Qualifications for taking seamen's competence examinations, number of applicants, and number of successful applicants
(Provide data of the last 5 years.)
- (9)Details of seamen policy and its future plan (if any)
(Needs and policy for the increase of the number of seamen including officers)

4 .General educational system and seamen education in Turkey.

Please provide information on the following item:

- (1)General educational system and seamen education in Turkey.
(Compulsory secondary and higher education ,school age, period of education number of students etc.)
- (2)Overview of seaman education /organizations other than Istanbul Technical University Maritime Faculty(ITUMF)
(Provide information on both public and private organizations such as the name. The number of student,period. level of education and entrance qualifications.)
- (3)Relationship between Turkish seaman education /policy and STCW Treaty
(Does Turkey have a Policy to make embark more Turkish seamen on foreign vessels ?)

5 .Current status of Istanbul Technical University Maritime Faculty(ITUMF).

Please provide information on the following item:

- (1)History of ITUMF
- (2)Organization and personnel of ITUMF, its relationship with the organization in charge of marine transport administration.
- (3)budgets for ITUMF
(Provide data of the last 5 years)
- (4)Facilities and equipment of ITUMF.
(including infrastructure facilities such as building layout and dormitory).
- (5)Major educational training equipment and machinery and their operating state.
- (6)Currently available training courses, description of training (overview of curriculum), number of intake, entrance qualifications, training period, student selection procedures (by course)
- (7)Number of applicants, number of students who enter ITUMF, number of graduates, and employments.
(Provide data of the last 5 years.)
- (8)Current number of students (by course, by years).

- (9) Relationship between training level (at the time of graduation) and seamen's competency qualifications, the number of seamen who successfully acquired competency qualifications at the time of graduation.
(Provide data of the last 5 years).
- (10) Overview of organizations and ships that accept training aboard.
- (11) Number of accepting foreign students accepted.
- (12) Expenses for students (tuition, dormitory fees, food expenses, living expenses, other miscellaneous expenses)
- (13) Does ITUMF have a scholarship system? If any, please explain the system briefly.
- (14) Information on instructors, such as the number of instructors, their academic background, professional career, seamen's competency qualifications, experience of working aboard, and salary.
- (15) Assistance received in the past and assistance being received at present from multinational organizations and bilateral aid agencies (including UNDP/IMO MSTC Project of Turkey/-1993-1996).
- (16) Relationship between Marine Safety Training Center of Turkey(MSTC) and ITUMF.

6 .Current status of Marine Safety Training Center of Turkey(MSTC).

Please provide information on the following item:

- (1) History of MSTC.
- (2) Organization and personnel of MSTC, its relationship with the organization in charge of marine transport administration and the private enterprises.
- (3) budgets for MSTC
(Provide data of the last 5 years)
- (4) Facilities and equipment of MSTC.
(including infrastructure facilities such as building layout and dormitory).
- (5) Major training equipment and machinery and their operating state.
- (6) Currently available training courses, description of training (overview of curriculum), number of intake, entrance qualifications, training period, trainee selection procedures (by course)

- (7) Number of applicants, number of trainees who enter the Institute, number of completions, and employments.
(Provide data of the last 5 years.)
- (8) Current number of trainees (by course, by years).
- (9) Relationship between training level (at the time of graduation) and seamen's competency qualifications, the number of seamen who successfully acquired competency qualifications at the time of completion.
(Provide data of the last 5 years.).
- (10) Overview of organizations and ships that accept training aboard.
- (11) Number of accepting foreign trainees accepted.
- (12) Expenses for trainees (tuition, dormitory fees, food expenses, living expenses, other miscellaneous expenses)
- (13) Does MSTC have a scholarship system ? If any, please explain the system briefly.
- (14) Information on instructors, such as the number of instructors, their academic background, professional career, seamen's competency qualifications, experience of working aboard, and salary.
- (15) Assistance received in the past and assistance being received at present from multinational organizations and bilateral aid agencies (including UNDP/IMO MSTC Project of Turkey/-1993-1996).

7 .Purpose and plan of the project.

Please provide information on the following items :

- (1) Purpose of the project.
(conceptual objective, scale of training, brief description of training level, target year, etc.).
- (2) Outputs of the project
- (3) Activities of the project
- (4) Competent authorities of the project, the section in charge of the project, the organization that implements the project, the director of the project.
- (5) Do you have any training facility extension or remodeling plan ? if any, explain it briefly.

- (6) Do you have any plan for improving the organization or increasing instructors? If any, please explain its outlook.
- (7) Please explain your instructor development plan.
(employment plan, procedures of inviting applications, salary, instructor education plan)
- (8) Explain the financial plan for the project, estimated recurring expenses and the outlook of securing budgets for them.
- (9) Number of experts expected from Japan, their requirements and the period of description
- (10) Number and description of trainees expected to receive training in Japan.
- (11) Plan for improving educational equipment and machinery.
(teaching training equipment and materials expected from Japan and those to be supplied by Turkey).
- (12) Plan for establishing an equipment and machinery maintenance system.
(personnel and budgetary preparations)
- (13) Plan to accept foreign students.

(2) クエスチョネアー第2回 (ITUMF)

Questionnaire

1 .General information

(1)Please provide information on the annual budgets allocated for ITUMF (The amounts for the last 5 years)

2 .Details of ITUMF

(1)Instructors

1)Please provide Information on instructors (instructors' names, their academic backgrounds, professional careers, seamen's competency qualifications, experience of working aboard)

2)Do you have an immediate plan for increasing instructors ? If any, please explain it.

3)Please explain your instructor development plan. (employment plan, procedures of inviting applications, instructor education plan)

(2)Students

Please provide information on the following:

1)Enrollments by course (For the last 5 years)

2)Number of graduates by course (For the last 5 years)

3)Graduate's employment (For the last 5 years)

		1995		1996		1997	
		Jobs offered	Actual recruitment	Jobs offered	Actual recruitment	Jobs offered	Actual recruitment
Turkish Company	On land						
	On sea						
Foreign Company	On land						
	On sea						

4)Number of the foreign students accepted (For the last 5 years)

(3)Educational and training equipment and machinery

1)List of educational and training equipment and machinery

2)Plan for upgrading and procuring educational and training equipment and machinery.(Other than the equipment to be procured by Japan)

(4)On-board Training

1) Names of the organizations receiving ITUMF students on-board training, number of the students accepted, and ship types used for on-board training (For the last 5 years)

3 .Current status of MSTC

- (1)Currently available training courses, description of training (curriculum), training capacity, admission qualifications, training period, trainee selection procedures (by course)
- (2)Number of applicants, number of trainees accepted, number of the trainees completed the courses (For the last 5 years)
- (3)Expenses for trainees (tuition, dormitory fees, food expenses,living expenses, other miscellaneous expenses)
- (4)Information on instructors (the number of instructors, their academic backgrounds, professional careers, seamen's competency qualifications, experience of working aboard - if instructors are different from the ones teaching undergraduate courses)
- (5)Number of the foreign trainees accepted
- (6)Organizations and ships that accept on-board training

4 .Current status of Seafarers Examination Center

- (1) Examinations performed by the Center
- (2)Number of the examinees and successful examinees (For the last 5 years)

5 .Others

1. Brief description of and basic information on the below-mentioned organizations (Background, number of members, relationship with ITU, etc.)
2. What kind of support can they provide to ITUMF ?

<Organizations>

ITUMF Allumini Associations

Ship Owners

IMO

UNDP

Turkish Maritime Company

Chamber of Shipping

BSEC

Turkish Maritime Law Association

Turkish Higher Education Council

Turkish Maritime Education Foundation

International Trade Union (ITF)

(3) クエスチョネアー第1回 (海事庁)

Questionnaire

1 .Position of the project in the national development plan.

(1)Please explain the outline of "Turkey 5years Development No.7th Plan".

(2)Please explain the national policy and the future plans on marine

[including the relevant statement in "Turkey 5years Development No.7th Plan" and the relationship between Black Sea Economical Cooperation(BSEC)]

(3)Please provide information on various economic and industrial indicators and the shares occupied by marine transportation and seamen. (For the last 5 years)

(4)Please provide information on labor situation (such as working population by field, unemployment rate, and average salary by occupation). (For the last 5 years.)

(5)Please explain what effects (such as expected benefits, employment promotion effects, self-help effects, and secondary effects) are expected by implementing the project.

2 .Current status of Turkish marine transport.

Please provide information on the following items :

(1)Ocean-going ships of Turkish registry. (vessel types, number of vessels, gross tonnage) (For the last 5 years)

(2)Total volume of international trading, main trading products, major trade partner countries (For the last 5 years)

(3)Total volume of international trading by marine transportation, loading percentage of ships of Turkish registry. (For the last 5 years).

(4)Information on ships other than ocean-going ships (such as coastwise vessels, fishing boats, and work barges). (types, number of vessels, gross tonnage) (For the last 5 years)

(5)Total volume of domestic trading, main trading products. (For the last 5 years)

(6)Total volume of domestic trading by marine transportation. (For the last 5 years)

(7)Information on major ports and their facilities. (such as mooring capacity and support facilities).

(8)Total volume and name of main handling products on each major ports. (For the last 5 years)

(9)Organization in charge of marine transport administration. (such as an organization chart of the competent authorities, division of roles, brief description of services and operation)

(10)Law of maritime affairs, organization in charge of law of maritim affairs.

(11)Shipping agent (total number, name of major shipping agent and history, percentage of public and private)

(12)Measure of treatment for shipping agent warmly (tax, rate of interest, etc.)

(13)Chamber of shipping (participant and/or participating organaization, history, function)

(14)Total number of accidents in Turkey, circumstances of accidents, vessel types. (For the last 5 years)

(15)Total number of sailing ships in Bosphorus Strait (For the last 5 years)

(16)Total number of merchant vessel's accidents in Bosphorus Strait , name of the countries which caused the accidents.

(17)Regulation and/or rule of sailing in Bosphorus Strait.

(18)The Problems and/or issues of Turkish marine transport.

3 .Current status of Turkish Seamen.

Please provide information on the following items :

- (1)Overview of seaman registration system
(such as competent authorities. contents of registration, and registration procedure)
- (2)Number of registered seamen
(Number of seamen by occupation, by qualification. etc.) (For the last 5 years)
- (3)Number of seamen aboard ships of Turkish registry and the percentage of Turkish seamen (by occupation)
- (4)Number of Turkish seamen aboard ships of the foreign country registry and the percentage of their occupation
- (5)Overview of seamen's competence qualification system
(types of seamen 's competence qualifications, applicable ships and sea areas by qualification)
- (6)Are foreign seamen's competence qualification acknowledged in Turkey? (Explain the relationship between foreign and Turkish seamen's competence qualification.
[For reference information, foreign seamen's competence qualifications are not acknowledged in Japan.]
- (7)Overview of seamen's competence qualification examination system
(organization in charge of examinations, subjects and methods of examinations [For reference information, written, oral, and health examinations are given in Japan])
- (8)Qualifications for taking seamen's competence examinations, number of applicants, and number of successful applicants. (For the last 5 years)
- (9)Details of seamen policy and its future plan (if any)
(Needs and policy for the increase of the number of seamen including officers)

4 .General educational system and seamen education in Turkey.

Please provide information on the following item:

- (1)General educational system and seamen education in Turkey.
(Compulsory secondary and higher education ,school age, period of education number of students etc.)
- (2)Overview of seaman education /organizations other than Istanbul Technical University Maritime Faculty(ITUMF)
(Provide information on both public and private organizations such as the name. The number of student,period. level of education and entrance qualifications.)
- (3)Relationship between Turkish seaman education /policy and STCW Treaty
(Does Turkey have a Policy to make embark more Turkish seamen on foreign vessels ?)

T.R.
PRIME MINISTRY
UNDERSECRETARIAT OF MARITIME
General Directorate of Marine Transportation

Number : B.02.1DNM/0.06.02.03/EBIM-GA-10
Subject : Questionnaire

ANKARA _

June 1, 1998 * 02579

JICA TURKEY OFFICE
Uğur Mumcu Cad. 88/6 B Block
06700 GAZİOSMAPAŞA / ANKARA

The answering of the questionnaire for the Project of Seafarers' Education by the Simulators has been completed by our Undersecretariat and is attached.

I would present to your acknowledgement.

Mehmet HATİP
In the name of Undersecretary
Director General of
Marine Transportation

Attachment:
Attach. 1: File

QUESTIONNAIRE FOR THE SEAFARERS' EDUCATION BY THE SIMULATORS IN TURKEY AND ANSWERS FOR THIS QUESTIONNAIRE

I. Position of the project in the country's national development plan.

With this project, the education of both Turkish and foreign seafarers will be realized and the education of these seafarers' will reach to the standard that the international agreements envisaged.

(1) Please explain the outline of "Turkey 5 years Development No.7th Plan".

The 5 years Development No. 7th Plan targets to benefit from the advantages of globalization and our country's taking its prior position among the developed countries of the world.

In the period of 5 years Development No. 7th Plan, a consistent and ensuring environment of development will be created by the application of the policies of macro economic and structural adaptation in an appropriate timing and completeness.

The 5 years Development No.7th Plan will also be the certificate that sets a course to the period of democratization in addition to being a new strategic approach towards our country's development targets.

The 5 years Development No. 7th Plan will determine the general principles and priorities of the applications of the middle and long term economic, social and cultural policies, will predict the probable development direction that is envisaged within the frame of economic market mechanism and will form a general frame that will assist decision periods of the economic units.

The aim of the transportation sector in the 5 years Development No. 7th Plan is to create transportation infrastructure concordant with the environment that can make the highest contribution for reaching the development targets by giving economic, speedy and trusted service with a concordant integration created among transportation moods.

In order to reach this aim, it is targeted to raise the productivity in the sector by using the existent capacities completely and realizing the new infrastructure, legal and organizational regulations to lead the transfer of domestic cargo transportation that is done mostly by motorways to railways, sea-lane and pipe lines.

Starting from this target, a Transportation Main Plan which takes the transportation sub systems in hand in concordant and as the complimentary of eachother with the country's economical and social development will be prepared.

Within the frame of Black Sea Economical Cooperation, needed arrangements will be done to support the transportation links. While realizing Transportation Investments, importance will be given to Built-Operate-Transfer model. The programmed investments in the ports and airports will be accelerated, new capacities in the needed places will be formed.

To provide the effective usage of motorways, ports and airports these systems will be integrated with the motorways and railway main axles. Besides, in this Plan about the maritime sector, a dynamic maritime policy that follows world maritime sector closely and gives opportunity to the regulations that provides adaptation to international conditions will be developed.

It is expected to increase the maritime trade fleet to 13 million DWT by increasing the share taken from the world maritime transportation. It is targeted to benefit from the port capacities in the highest level and taking more share from transit transportation by providing a concordant structure with the progress in national and international trade.

Parallel to the increase in container traffic, new container terminal investments will be realized in Derince and İskenderun.

(2) Please explain the national policy and the future plans on maritime sector.

[including the relevant information on the "Turkey 5 years Development No.7th Plan" as well as Turkey's strategy towards Black Sea Economical Cooperation (BSEC)]

The renovation, increase the variety, growing, of the fleet by considering the offerings of the customers that request transportation in the Maritime Sector, development of ship construction industry, rehabilitation of the ports, development of subordinate industry, import, export in addition to increasing the share in transportation with the third flag countries so as to achieve a positive effect in making contribution to the country's balance of payments and developing Turkish international ship registration, giving priority to education and to establish Ministry of Maritime Affairs connected with Maritime Sector.

(3) Please give us the figures that can indicate the relative importance of the maritime industry in Turkey including changes in population engaged in the maritime industry. (For the last 5 years)

The statistical information about the staff engaged in maritime industry are recorded in our Undersecretariat. But, due to the information we have, it is determined that there are around 40,000 officers and around 175 thousand crew, total 215.000 seafarers achieved their certificates. In addition to this, the main factors effecting maritime industry are, the incitements by the government, charter fees, fees for the personnel and the family conditions of the seafarers.

(4) Please provide information on the labour situations (such as working population by sector, unemployment rates, and average salary by occupation).

The statistical information about the seafarers working in the ships in this sector are also being kept . The competent seafarers for middle (close distance) and high level (oceangoing) generally do not have difficulty in finding a job. But for the competent crew like deck boy and wiper it is a bit harder to find a job. The average salary for deck boy and wiper is between 90 - 100 million T.L. and the average salary for oceangoing competents is between 2500 - 3500 USD.

(5) Please explain what effects (such as expected benefits, employment promotion effects, self-help effects, and indirect effects) are expected through the implementation of this project.

In case of the realization of this project it is aimed Turkish citizens will acquire adequate maritime education and in addition to this to raise the education of the foreigners

to the standards that International Agreements envisaged so with this project our seafarers will be able realize self-help and also Turkey will export competent seafarers to other countries.

II. Current status of Turkish marine transport.

(1) Ocean-going ships of Turkish registry. (vessel types, number of vessels, gross tonnage) (For the last 5 years)

Attachment - 1

(2) Total volume of international trading, main trading products, major trade partner countries (For the last 5 years)

Attachment - 2

(3) Total volume of international trading by marine transportation, loading percentage of ships of Turkish registry. (For the last 5 years)

Attachment - 3

(4) Information on ships other than ocean-going ships (such as coast-wise vessels, fishing boats, and work barges). (types, number of vessels, gross tonnage) (For the last 5 years)

Attachment - 4

(5) Total volume of domestic trading and main trading products. (For the last 5 years)

Attachment - 5

(6) Total volume of domestic trading by marine transportation. (For the last 5 years)

Attachment - 6

(7) Information on major ports and their facilities. (such as mooring capacity and support facilities).

Attachment - 7

(8) Total volume and names of main handling products major ports. (For the last 5 years)

Attachment - 8

(9) Organization in charge of marine transport administration. (such as organization chart of the competent authorities, divisions of roles, brief description of their services and operations)

Attachment - 9

(10) Law of maritime affairs and organization in charge of law of maritime affairs

In Turkey, there are several regulations in maritime sector and in accordance with this there are several organizations responsible for these regulations.

(11) Shipping agents (total number, names of major shipping agents, and brief description of their development, changes of percentage of public and private firms' share)

There are 3487 maritime firms in Turkey.

(12) Privileges given to shipping agents (tax, interest rates, etc.)

Shipyard investments (establishments acquiring Shipbuilding and Maintenance) as having priority among sector investments, benefits from the right of 100% discount from the investment tax within the frame of incitement certificate.

(13) Chamber of shipping (members, organization structure, history, functions)

There two chambers; Chamber of İstanbul and Marmara,Ege, Akdeniz, Karadeniz Regions Marine Trade and Chamber of Mersin Marine Trade.

(14) Total number of accidents on the Turkish water, details of the accidents, vessel types. (For the last 5 years)

Attachment - 10

(15) Total number of sailing ships in Bosphorus Strait. (For the last 5 years)

Total number of sailing ships in Bosphorus Strait is 60.

(16) Total number of merchant vessel's accidents in Bosphorus Strait, names of the countries which caused the accidents

Attachment - 10

(17) Regulations and rules of sailing in Bosphorus Strait.

The regulations and rules of sailing in Bosphorus Strait were published on the Official Gazette dated January 11,1994 and numbered 21815 and these determined regulations have been valid since July 1, 1994 under the title of Regulations on Marine Traffic Order in Bosphorus Strait and Marmara Region.

(18)Problems and/or priority issues of Turkish marine transport.

Attachment - 11

III. Current Status of Turkish Seamen.

(1) Outline of seamen registration system (competent authorities, contents of registration and registration procedure.

The records of the crew class of the seamen are kept in the Port Directorates and those of officers are kept both in the Port Directorates and our Undersecretariat. The records of the officers kept in our Undersecretariat are loaded in the computer.

(2) Number of registered seamen (Number of seamen by occupation, by qualification, etc.) (For the last 5 years)

There are approximately 215 thousand registered seamen around 40.000 of which is officers and around 175.000 is crew.

(3) Number of seamen aboard ships of Turkish registry and the percentage of Turkish seamen (by occupation)

As the statistical records of seafarers are not kept, we can not answer this question. ✓

(4) Number of seamen aboard ships of the foreign country registry and the percentage of their occupation.

This question can not be answered either, because of the previous item. ✓

(5) Outline of seamen's competence qualification system (types of seamen's competence qualifications, applicable ships and sea areas by qualification)

The competence qualification systems are explained in Seamen's Rules and Regulations that is prepared due to the International Agreement STCW. Attachment -12.✓

(6) Are foreign seamen's competence qualifications acknowledged in Turkey ? Are they treated equally on the Turkish water? [For instance, foreign seamen's competence qualifications are not acknowledged in Japan.]

Since 1994, in the Turkish flag vessels except for the master and cabotage sailing %40 percentage of foreign seamen has been employed./

(7) Outline of seamen's competence qualification system (organization in charge of examinations, subjects and methods of examinations [For instance, written, oral and health examinations are given in Japan.]

The seamen's competence examinations in our country is made by The Seamen's Examination Center formed by our Undersecretariat. The competence examinations are made by ITU Maritime Faculty in the name of our Undersecretariat. The types of examinations are written and oral.

(8) Qualifications for taking seamen's competence examinations, number of applicants, and number of the applicants who passed the examinations. (For the last 5 years)

There are two main points taking seamen's qualification examination which are being a graduate of a related school and completing the sea service envisaged for competence. The number of applicants differs each year. The number of the applicants who passed the examinations differs due to the competence level.

(9) Details of seamen policy and future plan (if any) (Needs and policy for the increase of the number of seamen including officers)

We can summarize the seamen policy as; to educate seamen in the direction that is envisaged in the International Agreement STCW and to export competent seamen abroad.

IV. General Educational system and seamen education in Turkey.

Please provide information on the followings.

There 3 levels in the education period of a seamen in Turkey these are, low, middle, high levels.

- low level seamen (deck boy, wiper and etc.), in case of being a graduate of primary education, are educated based on course and sea service.

- middle level seamen (coastal master, port captain, marine motor technician, marine mechanic technician, watchkeeping officer, restricted watchkeeping officer, engineer officer, restricted engineer officer) are educated in vocational high schools or junior officer schools.

- high level seamen (Unlimited engineer officer, unlimited second engineer) are educated in Maritime Faculties and Naval Military School.

(2) Outline of seamen education and organizations other than Maritime Faculty (ITUMF) that provide maritime education (Provide information on both public and private organizations, their name, enrolments, years of education, levels of education and entrance qualifications.)

At the organizations that educate high level seamen (for unlimited) the curriculum that is existent in IMO model courses content is followed and the other organization except for ITU Maritime Faculty are; Naval Military School, Istanbul University, ITU Maritime Vocational High School, 9 Eylül University, Karamürsel High School and Turkish Maritime Education Foundation (private). The education period in some of these schools is two and in some other is four years and in all these schools 24 months period of education is given as it is envisaged in IMO and sea apprenticeship is applied. Except for Turkish Maritime Education Foundation, to these training institutions applicants are accepted in the frame Higher Educational Council's regulations. The education in Turkish Maritime Education Foundation depend on a basic payment and the applicants should be high school graduates and be successful in the entrance examinations.

(3) Relationship between Turkish policy on seamen education/policy and STCW Treaty (Does Turkey have a policy to increase the number of Turkish seamen on foreign vessels?)

The seamen's education in Turkey is realized within the frame of STCW and IMO model courses and within these frame the export of seamen to abroad is aimed.

ATTACHMENT-1

THE NUMBER AND TONNAGE OF THE SHIPS BELONGING TO TURKISH TRADE FLEET AND CAN MAKE INTERNATIONAL
TÜRK TİCARET FİLOSUNUN ULUSLARARASI TAŞIMA YAPILABİLECEK GEMİLERİN SAYI VE TONAJLARI AŞAĞIDIR. EK-1
TRANSPORTATION

TYPES OF SHIPS

(300 GT'den BÜYÜK)

GEMİ TIPLERİ		1993	1994	1995	1996	1997
KURUYÜK GEMİSİ DRY LOAD SHIP	ADET NUMBER	430	441	445	443	442
	DWT	1462265	1416490	1432055	1394299	1348085
DÖKME YÜK GEMİSİ CASTING LOAD SHIP	ADET	107	122	149	170	174
	DWT	3629753	4156244	5109727	5956817	6147597
OBOGEMİSİ OBO SHIP	ADET	7	8	9	8	8
	DWT	637699	916848	916848	792849	792849
PETROL TANKERİ PETROLEUM TANKER	ADET	84	84	85	87	85
	DWT	1747846	1805935	1851086	1876292	1398506
KİMYEVİ MAD. TANKERİ CHEMICAL LOAD TANKER	ADET	14	18	23	30	30
	DWT	36382	51597	71463	89122	114674
LPG TANKERİ LPG TANKER	ADET	8	8	7	8	8
	DWT	14913	56026	15276	16512	20862
ASFALT TANKERİ ASPHALT TANKER	ADET	5	5	5	2	2
	DWT	6016	7816	7816	3482	3482
SU TANKERİ WATER TANKER	ADET	3	4	5	5	4
	DWT	1743	1743	2643	2268	1743
RO-RO GEMİSİ RO-RO SHIP	ADET	8	11	19	21	21
	DWT	26846	38758	105047	105047	115635
KONTEYNER CONTAINER	ADET	0	1	3	7	16
	DWT	0	4800	13795	48231	69426
FERİBOT FERRY BOAT	ADET	8	8	8	9	9
	DWT	7201	7201	7201	7201	7201

Ek-2

2. (2) Total international trade volume, main trading products, major trade partner countries

2. (2) Toplam uluslararası ticaret hacmi, başlıca ticareti yapılan ürünler, başlıca ticaret yapılan ülkeler.

Turkey's seaway foreign trade volume due to the indicators, load types and country groups.

Türkiye'nin Denizyolu dış ticaret hacminin yük cinslerine göre dağılımı ve ülke grupları

TÜRKİYE'NİN DENİZYOLU DIŞ TİCARET HACMİNİN YÜK CİNSLERİNE GÖRE DAĞILIMI

THE EXTENSION OF TURKEY'S SEAWAY FOREIGN TRADE VOLUME UP TO LOAD TYPES (1000 ton)

YEAR YIL	CRUDE OIL HAM PETROL AND PRODUCT VE ÜRÜN	COAL KÖMÜR	MINERAL MADEN ORE CEVHERİ	CEREALS HUBUBAT	INDUSTRIAL SANAYİ MAMULLERİ PRODUCTS & OTHER VE DİĞER	TOPLAM TOTAL	ANNUAL YILLIK CHANGE DEĞİŞİM
1987	19.635.6	4.249.5	4.050.3	808.9	19.784.3	48.528.6	14.5
1988	19.527.9	5.193.9	5.114.2	2.738.5	19.953.2	52.517.2	8.2
1989	20.222.7	4.096.8	5.435.2	3.735.8	21.710.3	55.200.8	5.1
1990	18.780.8	6.396.0	5.940.8	3.228.6	24.770.8	59.117.0	7.1
1991	25.446.8	6.859.0	5.799.1	4.683.4	27.426.8	70.235.1	18.8
1992	26.660.9	6.814.9	6.059.6	1.917.5	30.966.2	72.419.1	3.1
1993	31.350.2	7.864.4	5.839.9	3.527.8	34.845.2	82.977.5	14.6
1994	30.267.4	6.595.2	5.729.2	2.871.5	29.280.3	74.743.6	-9.9
1995	32.038.5	7.614.9	7.549.0	3.670.9	33.307.8	84.181.1	12.6
1996	36.063.2	10.680.1	8.006.8	3.898.9	33.031.3	91.680.3	8.9

IMPORT AND EXPORT BY SEAWAY DUE TO COUNTRY GROUPS

ÜLKE GRUPLARINA GÖRE DENİZYOLUYLA YAPILAN İHRACAT VE İTHALAT

1000 TON

COUNTRY GROUPS ÜLKE GRUPLARI	İHRACAT EXPORT				İTHALAT IMPORT				TÜRK BAY. GEMİ (%) 1995	TÜRK BAY. GEMİ (%) 1996
	1995		1996		1995		1996			
	MİKTAR AMOUNT	PAT(%) SHARE	MİKTAR AMOUNT	PAT(%) SHARE	MİKTAR	PAT(%)	MİKTAR	PAT(%)		
I. OECD ÜLKELERİ OECD COUNTRIES	8.624.3	42.7	9.024.5	48.9	19.511.5	30.5	30.279.4	27.8	29.9	28.5
a. AT ÜLKELERİ	7.489.3	37.2	7.831.6	41.6	9.211.9	14.4	10.204.4	14.0	26.9	33.4
GERMANY	82.6	0.4	85.1	0.5	1.621.4	2.5	1.348.9	1.9	22.9	29.6
BELGIUM	462.9	2.3	277.5	1.5	1.369.1	2.1	1.217.3	1.7	33.6	28.9
FRANCE	462.7	2.3	501.0	2.6	658.2	1.0	1.054.0	1.4	23.1	23.3
HOLLAND	461.5	2.3	429.2	2.3	2.188.2	3.4	2.470.1	3.4	40.2	55.8
ENGLAND	377.7	1.9	298.0	1.6	755.4	1.2	779.5	1.1	24.9	24.9
SPAIN	1.444.1	7.2	2.060.8	10.9	359.3	0.6	754.7	1.0	169.6	25.0
ITALY	3.371.9	16.7	3.380.2	17.9	1.291.7	2.0	1.544.5	2.1	23.2	18.6
GREECE	667.7	3.3	732.2	3.9	762.4	1.2	863.4	1.2	31.4	23.2
OTHER	166.8	0.8	67.6	0.4	205.8	0.3	172.0	0.2	11.8	24.5
b. DİĞER OECD ÜLK.	1.125.9	5.6	1.192.9	6.3	10.299.5	16.1	10.075.0	13.8	35.0	36.1
ABD	714.8	3.5	671.3	3.5	6.418.1	10.0	5.632.1	7.7	34.0	36.6
KANADA	37.0	0.2	40.0	0.2	858.6	1.3	662.0	0.9	21.7	32.4
DİĞERLERİ	374.0	1.9	481.6	2.5	3.022.7	4.7	3.780.9	5.2	21.5	35.8
II. İSLAM ÜLKELERİ	5.810.4	28.8	4.488.3	23.8	24.664.8	38.5	26.670.1	36.6	59.9	53.8
a. BASRA KÖRF. ÜLK.	1.446.6	7.2	777.2	4.0	7.878.6	12.3	3.263.0	4.5	65.6	34.0
b. DİĞER İSLAM ÜLK.	4.363.7	21.6	3.711.1	19.7	16.786.1	26.2	23.407.7	32.1	57.4	56.7
III. DİĞER ÜLKELER	5.739.7	28.5	5.333.4	28.3	19.830.2	31.0	25.884.5	35.6	10.2	17.7
GENEL TOPLAM	20.174.5	100.0	18.846.2	100.0	64.006.5	100.0	72.834.0	100.0	100.0	100.0

GROSS TOTAL

ATTACHMENT-3

EK-3

TURKEY'S SEA-LANE TRANSPORTATION VOLUME AND THE TRANSPORTATION SHARE OF TURKISH FLAG SHIPS
TÜRKİYE'NİN DENİZYOLU TAŞIMACILIĞI HACMİ VE TÜRK BAYRAKLI GEMİLERİN TAŞIMA
PAYLARI

(UNIT : TON)

(BİRİM:TON)

YILLAR YEARS	TOPLAM TOTAL	İHRACAT EXPORT	İTHALAT IMPORT	TÜRK BAYRAKLI GEMİ PAYLARI TAŞIMA	%
1993	82.977.537	18.102.360	64.875.177	33.487.499	40.4
1994	74.743.615	22.112.827	52.630.788	36.986.641	49.5
1995	84.181.116	20.174.562	64.006.554	35.157.163	41.8
1996	91.680.12	18.846.238	72.834.074	36.057.963	39.3
1997	112.373.431	37.005.695	75.636.736	32.835.901	29.2

TURKISH FLAG
SHIP'S SHARE IN
TRANSPORTATION

ATTAC.-4
EK-4

THE CONDITION OF THE SHIPS MAKING COASTAL TOURS
KIYISAL SEFER YAPAN GEMİLERİN DURUMU

(BIGGER THAN 18 GT)

(18 GT'den BÜYÜK)

VESSEL TYPES

CITY LINE
SHIP

MERCHANT AND
PRIVATE YATCH

PASSENGER AND
PASSENGER/CARGO

CAR-FERRY

RESEARCH

SERVICE SHIPS

GEMİ TIPLERİ	ADET	DWT
ŞEHİR HATLARI GEMİSİ	NUMBER 67	12.241
TİCARİ VE ÖZEL YAT	1318	10.304
YOLCU VE YOLCU/YÜK	508	26.124
ARABALI VAPUR	17	11.306
ARAŞTIRMA	7	606
HİZMET GEMİLERİ	183	6.651

EK-5

TURKEY'S FOREIGN TRADE VOLUME AND INFORMATION ON COASTAL TRADE
TÜRKİYE'NİN DIŞ TİCARET HACMİ VE KABOTAJ TAŞIMALARI BİLGİLERİ

(UNIT: TON)
(BİRİM: TON)

YILLAR YEARS	İTHALAT (BOŞALTIMA) IMPORT	İHRACAT (YÜKLEME) EXPORT	KABOTAJ (YÜK-BOŞ) CABOTAGE	TOPLAM ELLEÇLEME (BİN TON)
1993	64.875	18.102	36.244	119.221
1994	52.631	22.113	34.004	108.748
1995	64.007	20.175	34.535	118.707
1996	72.834	18.846	36.162	127.812
1997	75.364	37.010	41.716	154.090

TOTAL
(THOUSAND TON)

THE CONDITION OF DOMESTIC TRADE VOLUME BY MARINE TRANSPORTATION WITHIN 5 YEARS

DENİZ TAŞIMACILIĞIYLA TOPLAM İÇ TİCARET HACMİNİN SON 5 YIL İÇİNDEKİ DURUMU

YEAR AND TYPE OF TRANSPORTATION	YILI VE TAŞIMANIN NEVİ	PETROLEUM AND PETROLEUM PRODUCTS	MINERAL ORE	COAL	CEREALS	DIFFERENT MATERIAL AND OTHERS	(UNIT: TON) (BİRİM: TON)
		PETROL VE PETROL ÜRÜNLERİ	MADEN CEVHERİ	MADEN KÖMÜRÜ	HUBUBAT	KARIŞIK EŞYA VE DİĞER	TOPLAM TOTAL
1993	YÜKLEME LOADING	10.591.147	681.657	1.100.003	136.460	2.831.348	15.373.378
	DISCHARGE BOŞALTMA	10.123.052	698.411	1.139.884	198.133	8.673.111	20.869.783
1994	YÜKLEME	10.392.164	651.529	924.817	52.830	3.319.990	15.357.566
	BOŞALTMA	10.353.754	639.743	939.255	70.137	6.625.567	18.646.496
1995	YÜKLEME	10.739.686	763.116	610.513	50.910	3.248.990	15.417.317
	BOŞALTMA	10.723.128	786.813	637.376	89.624	6.232.328	19.108.136
1996	YÜKLEME	10.764.287	841.308	517.856	47.418	3.631.105	15.801.974
	BOŞALTMA	10.880.563	1.535.628	627.611	166.365	7.119.500	20.329.667
1997	YÜKLEME	13.185.384	918.772	433.895	273.139	3.812.347	18.623.537
	BOŞALTMA	13.061.036	957.261	440.497	406.578	8.206.714	23.072.086

T.C. BAŞBAKANLIK
DENİZCİLİK MÜSTEŞARLIĞI
DENİZ ULAŞTIRMASI GENEL MÜDÜRLÜĞÜ
1993 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTMANIN İZİNİ VEREN LİMANLARIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK - ARALIK)
PERIOD (JANUARY - DECEMBER)

UNDER SECRETARIAT OF COMMERCE
(EBİM) GENERAL DIRECTORATE OF MARINE TRANSPORTATION
AND EMPTYING BY SEA-LANE BİRİM : TON
IN OUR PORTS DUE TO SAYFA : 1
MATERIAL TYPES

TABLE : 3
TABLO : 3

NAME OF PORT LİMAN ADI	TOTAL TOPLAM	DÖKME YÜK SPLIT LOAD		SIVI DÖKME YÜK LIQUID SPLIT LOAD					KARIŞIK ESYA MIXED OBJECTS		KERESTE WOOD
		HUBUBAT CEREALS	MADEN CEVHERİ	AKA COAL	KÖMÜR OIL	HAZIR PETROL	SIVILAŞT ÜRÜNLERİ PRODUCTS	GAZ GAS	DİĞER SIVILAR OTHER LIQUIDS	SANAYİ SİVİLAR MAMÜLLERİ INDUSTRIAL PRODUCTS	
ALANYA	YÜK BOŞ	YÜK LOAD EMPTY 767							767		
ALIĞA	YÜK BOŞ	4266184 7681142		13195 7152939	4163373 440827	3045 37108	60 6000	86511 44268			
AMASRA	YÜK BOŞ	93380 1650		93380							1650
ANANUR	YÜK BOŞ										
ANTALYA	YÜK BOŞ	185986 883088	10300	66456 4060	35589	13848 757898	2959 500	91711 72497	712		8429 4115
AYANCIK	YÜK BOŞ										
AYVALIK	YÜK BOŞ	21515 20681						21500 14700	7 5981	B	
RANDIRMA	YÜK BOŞ	1318495 1992536	12350 145251	984166 431908	12109 358095	7960	3250 110810	296886 914742	7662	9734 46108	
BARTIN	YÜK BOŞ	182643 353080		3714	47538			140650 284804	152	41841 17024	
BODRUM	YÜK BOŞ	134 2730							2330		68 400
BOTAŞ	YÜK BOŞ	2613343 4912758	43425 451612	16514	19500 353900	1676800 1831145	30670 1014602	842948 1088581			87207 4552
BOZCAADA	YÜK BOŞ	250 718			250		718				
ÇİDE	YÜK BOŞ										9931
ÇANAKKALE	YÜK BOŞ	1587876 236840	8028 1070		93655	3170 5515	570 1584	1571299 71337		4809 63679	
ÇEŞME	YÜK BOŞ	562 795				170 795		29		363	

T.C. BAŞBAKANLIK
DENİZCİLİK MÜSTEŞARLIĞI
DENİZ ULAŞTIRMASI GENEL MÜDÜRLÜĞÜ (ERİM)
1993 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTMANIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 2

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA			KERESTE
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLAŞT GAZ	DİĞER SIVILAR	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ	DİĞER YÜKLER	
EDREMIT	YÜK BOŞ											
ENEZ	YÜK BOŞ	250										250
ERDEK	YÜK BOŞ	6580 144704				144704				1690		4890
FATSA	YÜK BOŞ	2656 108719		1450 35048				18	1049 32705	139		180 40766
FETHİYE	YÜK BOŞ	19350 182720	19350 2000			165465			3915			11340
FINİKE	YÜK BOŞ											
GELİBOLU	YÜK BOŞ	6910 159873				7300			1190 26898			5720 116618 5057
GEMLİK	YÜK BOŞ	307306 1952539	3892 39569	5920 305815		980 188683	1700	16200 100254	269372 933443	1100 66850		9842 194153 116739
GERZE	YÜK BOŞ											
GİRESUN	YÜK BOŞ	49618 178411	9 24250	39042 689	13369	61005			768 37131	9799		7357 34610
GÖKÇEADA	YÜK BOŞ	49550				1770			17250			30530
GÖRELE	YÜK BOŞ	2554		2554								
GÜLLÜK	YÜK BOŞ	388658 500	374598			500		2500	11560			
HOPA	YÜK BOŞ	174122 355922	139046 6745	61431		70696			5930 72581	163		29146 116568 27738
İGNEADA	YÜK BOŞ	22766										22766

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1993 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTMANIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 3

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA		KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLAŞT GAZ	DİĞER SİVİLLER	SANAYİ MAMÜLLERİ	TARIM ÜRÜNÜ.		DİĞER YÜKLER
İSKENDERUN	YÜK	3330442	460291	158947	99352	291011	115250	10349	2027464	17333	150319	126
	BOŞ	8588366	106397	170765	3662583	1922404	373562	37191	1676567	6846	558432	73619
İSTANBUL	YÜK	376075	9429	45160	3580	29165		4428	47578	2475	232780	1480
	BOŞ	10676223	5320	158320	232765	3649286	190354	11377	682184	39612	5644446	59559
İZMİR	YÜK	1363409	10650	26375				50392	1100230	49920	125358	484
	BOŞ	1832608	592891	15129	170914	12668		98286	760475	59295	89524	33426
İZMİT	YÜK	8146831		82017	1822	5313508	300190	50758	2269067	14600	104040	10829
	BOŞ	21511214	76202	143602	843462	8767983	1709855	1071379	81579	6418308	8089	741229
KARABİGA	YÜK	180025			178300						1400	325
	BOŞ	43316							4940		38376	
KARASU	YÜK											
	BOŞ											
KAŞ	YÜK											
	BOŞ											
KEFKEN	YÜK											
	BOŞ											
KDZ.EREĞLİ	YÜK	994877			210976		1000		450234	1477	331190	
	BOŞ	5499381		2562071	1652859		221881		1003913		14883	43774
KUŞADASI	YÜK											
	BOŞ	172393					172393					
MARMARİS	YÜK	3										3
	BOŞ											
MERSİN	YÜK	3355320	462639	192763	2950	1697893		33816	393999	244883	319803	6574
	BOŞ	7002618	463663	115884	20504	4442002	478826	462072	498586	204534	246129	70418
MUDANYA	YÜK	123854		116225					4866	950	813	1000
	BOŞ	329480	1525		28604		178275		80074			41002
NEMRUT	YÜK	2264091	500	3600	39127		56000		2163064		1800	
	BOŞ	5829363	47691	54038	238192	305814	227561	50608	4831532		53187	20740
ORDU	YÜK	22384		1000				20884	500			
	BOŞ	57614							33616		1932	22066

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1993 YILINDA DENİZ YOLUYLA LİMANLARIMIZDA YAPILAN YÜKLEME VE BOŞALTMANIN
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DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 4

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA			KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞTIRILAN GAZ	DiĞER SIVILAR	DiĞER MAMÜLLERİ	TARIM ÜRÜNLERİ	DiĞER YÜKLER		
RİZE	YÜK	5584		700					34	4850			
	BOŞ	248395	3630	93276		72650		72899			5920		
SAMSUN	YÜK	514240	2500	390183	4900	5200		105515	42	5900			
	BOŞ	2228881	194663	345030		534542	62418	87479	778312		49738	51590	
SİLİVRİ	YÜK	2350	1750									600	
	BOŞ	144000		22950	18610			15065			87375		
SİNOP	YÜK	163			107					56			
	BOŞ	6615			3120			1485			1730	280	
SÜRMENE	YÜK	2520	2520										
	BOŞ	1900						1900					
ŞİLE	YÜK												
	BOŞ	66135									66135		
TAŞUCU	YÜK	784		784									
	BOŞ	180119				3780		121894				54445	
TEKİRDAĞ	YÜK	736980	528117					40889	167542	330	102		
	BOŞ	1060268	139045	6820	157484	13836		183191	322801	50285	155687	31119	
TİREBOLU	YÜK												
	BOŞ												
TRABZON	YÜK	82852	12410	1200		1650		10147	6689	50756			
	BOŞ	933468	53279	90367		406482		138858		166859	67291		
ÜNYE	YÜK	87510	9	2100				85401					
	BOŞ	119152		73633				25119			20400		
VAKFIKEBİR	YÜK	750						750					
	BOŞ	3400		350				3050					
ZONGULDAK	YÜK	457987		452987				5000					
	BOŞ	252386		4500	11590	2400		440	218007			15449	
TOPLAM	YÜK	33576176	1562407	2881961	1166850	1689995	11607638	418485	262275	12152991	355515	1430927	47132
	BOŞ	86115907	2311822	3894759	8939892	22499883	12476127	1739521	1370519	21313781	443336	8643955	2482312
TOPLAM		119692083	3874229	6776720	10106742	24189878	24083765	2158006	1632794	33466772	798851	10074882	2529444

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 1

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA		KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLİST GAZ	DİĞER SİVİLİST	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ		DİĞER YÜKLER
ALANYA	YÜK BOŞ	1000	1000									
ALIĞA	YÜK BOŞ	4092965 9209828	500			8845094	4084025 210252	1400 78953	7040 75529			
AMASRA	YÜK BOŞ	82930 4858		82770			4658		160		200	
ANAMUR	YÜK BOŞ											
ANTALYA	YÜK BOŞ	278553 920315	10499	96487 5549	15300 48137		9100 759905		1711 750	134427 86283	650 7150 11641	3229 8050
AYANCIK	YÜK BOŞ	150										150
AYVALIK	YÜK BOŞ	6250 8635							6250 8550	85		
BANDIRMA	YÜK BOŞ	1472884 1139138	3050 46807	1133954 312023	89365 229667		53968	1170	120 54340	244077 425384	1114	1204 15779
BARTIN	YÜK BOŞ	144393 199249		7020	7757					97202 184023		47191 449
BODRUM	YÜK BOŞ	804 850								744		60 850
BOTAŞ	YÜK BOŞ	3263192 3842713	23104 132697	31096	1050 379310	2047000 1917132	5100 785338		1200 35223	1185738 558914	3003	
BOZCAADA	YÜK BOŞ	200					200					
CİDE	YÜK BOŞ	329 3524										329 716 2808
ÇANAKKALE	YÜK BOŞ	1713074 266703	4050		134040		6000		1655	1702067 54491		6957 70517
ÇEŞME	YÜK BOŞ	600										600
DATÇA	YÜK											

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 2

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTE
		HUBUDAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞT GAZ	DİĞER SIVILAR	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ	
DİKİLİ	YÜK BOŞ	180215 55428	3200	162805	14210		50	49628	5750		
EDREMIT	YÜK BOŞ										
ENEZ	YÜK BOŞ	1350									1350
ERDEK	YÜK BOŞ	10045 138218					138158		5255		4790 60
FATSA	YÜK BOŞ	2160 78677	1 932		33509			23	312 28038	1393	431 150 16048
FETHİYE	YÜK BOŞ	41737 175935		39706 2006			161177		2031 1002		11750
FINİKE	YÜK BOŞ										
GELİBOLU	YÜK BOŞ	10316 212196	786				19800		5060 64201		4350 125007 2402
GEMLİK	YÜK BOŞ	435323 1332204	5930	14300 44978	270111		128575	44920 91410	355092 478067	83 39940	20928 214651 58542
GERZE	YÜK BOŞ	2000							2000		
GİRESUN	YÜK BOŞ	31863 91585	1045 7106	25690	9160		20800	203	50 21098	4875	6377 27044
GÖKÇEADA	YÜK BOŞ	50 20725					50 1000		7650		12075
GÖRELE	YÜK BOŞ	3060		3060							
GÜLLÜK	YÜK BOŞ	507035 2000		501270 2000				1215	4550		
HOPA	YÜK BOŞ	203331 123666		188237 1601	23788		41285	3300	5751 13617		9343 34505 5570
İĞNEADA	YÜK	16972		520							7900 8552

TABLO : 3

DÖNEMİ (OCAK -ARALIK)

SAYFA : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTE		
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLİST GAZ	DİĞER SİVİLİLER	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ		DİĞER YÜKLER	
İNEBOLU	YÜK	114211	96305	11890					6	132	1008	4870	
	BOŞ	500				500							
İSKENDERUN	YÜK	3427344	489556	152021	35156	184984	91619	3000	2345035	17223	92780	15970	
	BOŞ	6520678	41198	51106	2998789	1454879	403739	2087	1309811	1145	226346	31578	
İSTANBUL	YÜK	1178698	62457	82728	1500	70000	11092	6863	767136	2972	173610	340	
	BOŞ	10009067	850	208828	224247	4033336	189821	4214	1126726	2473	4216912	1660	
İZMİR	YÜK	1548373	2200	27705			340	36839	1342223	29129	108635	1302	
	BOŞ	744762	122245	10337	85505	18894		101352	298457	21632	71554	14786	
İZMİT	YÜK	8437877		84270	1750	36000	5096029	271235	42950	2716213	8000	157594	23836
	BOŞ	17666644	60124	95514	667304	9133031	1309926	885542	75613	4423718	4707	584220	426945
KARABİGA	YÜK	133011			127780							3940	1291
	BOŞ	41895		550					5470			35875	
KARASU	YÜK												
	BOŞ												
KAŞ	YÜK												
	BOŞ												
KEFKEN	YÜK												
	BOŞ												
KDZ.EREGLİ	YÜK	1179559		3005	162565				3350	711145	1546	297948	
	BOŞ	5097252		2410146	1603977		296914			740967		24259	20989
KUŞADASI	YÜK												
	BOŞ	14100					14100						
MARMARİS	YÜK												
	BOŞ												
MERSİN	YÜK	3819825	799421	376172		44957	1286885		48850	704301	248003	294507	16729
	BOŞ	5071374	351756	36460	7537	3287351	576159	5000	300704	187825	156458	127738	34386
MUDANYA	YÜK	170157		166119						3438			600
	BOŞ	196405		650			137219			38779			19757
NEMRUT	YÜK	3184524	10000	12250			93300		6600	3061674		700	
	BOŞ	4354148	39850	50987	173854		339441		21650	3675933		25250	27183
ORDU	YÜK	29497		11094					14030	4373			
	BOŞ	20247			2200					10638		2073	5336

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 4

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA		KERESTE		
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞT GAZ	DİĞER SIVILAR	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ		DİĞER YÜKLER	
PAZAR	YÜK BOŞ	21930		18404					3026		500		
RİZE	YÜK BOŞ	6306 168612	5500 81	97477		30800			55 33777	751	2600 3877		
SAMSUN	YÜK BOŞ	344931 1394195	50 8938	226303 289202	5747 194938		350705	59769	517 50038	104065 398584	2670 2259	200 21825	5379 17937
SİLİVRİ	YÜK BOŞ	480 456349		32650	16591			283792		10760		250 112556	230
SİNOP	YÜK BOŞ	5278 450	37		450					236	4415		590
SÜRMENE	YÜK BOŞ	250 2100										250 500	
SİLE	YÜK BOŞ	80860											80860
TAŞUCU	YÜK BOŞ	49557 92038		1475						48082 27170			64868
TEKİRDAĞ	YÜK BOŞ	883012 636827	688148 67128	9350	98235	450			11168 182570	172687 93933	450 49047	8459 130034	2100 6080
TİREBOLU	YÜK BOŞ	4150 2707	602	4150			1700						405
TRABZON	YÜK BOŞ	40505 689783	17505	1399 11698	68752		8318 445760		53 120	10477 46887	14012	6212 70951	34 28110
UNYE	YÜK BOŞ	19945 172632			91022		45414			19945 11616		23910	670
VAKFIKEBİR	YÜK BOŞ	3750								3750			
ZONGULDAK	YÜK BOŞ	436685 131923		5550	420906		500			15779 119424			5509
TOPLAM	YÜK BOŞ	37513546 71421085	2097281 904454	3413027 3619382	971464 7487821	2197957 23182608	10779223 11387863	364254 1907786	229862 984144	15778426 14572983	337418	1258347 6263245	86287 830135
TOPLAM		108934631	3001735	7032409	8459285	25380565	22167086	2272040	1214006	30351409	618082	7521592	916422

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK - ARALIK)

BİRİM : TON
SAYFA : 1

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTE
		HURUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞTIRILAN GAZ	DiĞER SIVILAR	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ	
ALANYA	YÜK	3397	795	2602							
	BOŞ	1220									1220
ALIAGA	YÜK	4198091		25439		3672649	5030	500	494473		
	BOŞ	10923704	16500	17142	42889	8222942	735015	192355	8659	1688202	
AMASRA	YÜK	101330		101330							
	BOŞ	350							700		150
ANAMUR	YÜK										
	BOŞ										
ANTALYA	YÜK	367539	1425	154833		24999			180210	3190	723
	BOŞ	1211302	46518	15659	40021	900703		2599	203584		2159
AYANCIK	YÜK										
	BOŞ										
AYVALIK	YÜK	2850									
	BOŞ										
BANDIRMA	YÜK	1426745		1136903	33800		100	80	224192	800	30870
	BOŞ	1345173	152093	228322	207825	260	1769	80863	631690	5385	36966
BARTIN	YÜK	178889		3800					142395		32344
	BOŞ	193780		6150	13864			2000	171566		200
BODRUM	YÜK	165									85
	BOŞ	600									600
ROTAŞ	YÜK	2217657	11731	18800	9940	1719300	75450	27005	2062	271561	81808
	BOŞ	5526179	655224	128462	506633	1993470	1330351	257110	88818	566111	
BOZCAADA	YÜK										
	BOŞ	2145					1845				300
CIDE	YÜK	350									350
	BOŞ	2014									600
ÇANAKKALE	YÜK	2688838	3000						720	2497037	188081
	BOŞ	647700			187452		8699		1855	296860	152834
ÇEŞME	YÜK										
	BOŞ	879					879				
DATÇA	YÜK										
	BOŞ										

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 2

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTE
		HURUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLİAŞT GAZ	DİĞER SİVİLİAR MAMÜLLERİ	SANAYİ	TARIM ÜRÜNLERİ	
DİKİLİ	YÜK	208623	138225	49553				8000	2345		10500
	BOŞ	63246				480		54182	8508		76
EDREMIT	YÜK										
	BOŞ										
ENEZ	YÜK										
	BOŞ										
ERDEK	YÜK	11040	1300	2850					2300		4590
	BOŞ	125670					125390		280		
FATSA	YÜK	2596		1400		400			49	747	
	BOŞ	176361		40797		1068			124103		1030
FETHİYE	YÜK	42200	40700						1500		
	BOŞ	226728	8551			200238			5274		12665
FINİKE	YÜK										
	BOŞ										
GELİBOLU	YÜK	7225									7225
	BOŞ	316755				9126			101386		206243
GEMLİK	YÜK	462620	28473					37230	371069	1313	18783
	BOŞ	1672742	18931	86065	69987	165413		161214	884695	53585	181436
GERZE	YÜK	3500							3500		
	BOŞ	450							450		
GİRESUN	YÜK	35745	20934						12057	2754	
	BOŞ	86408	22099	1650		24968			19788		6486
GÖKÇEADA	YÜK	1500						1500			
	BOŞ	10901						3440			7461
GÖRELE	YÜK	1600									1600
	BOŞ	1710		1510							200
GÜLLÜK	YÜK	668582	655666					5756	7160		
	BOŞ	2625	2625								
HOPA	YÜK	176775	173045								

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1995 YILINDA DENİZ YOLUYLA LIMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTMANIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 3

TABLO : 3

LIMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA			KERESTE
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞTIRILAN GAZ	DİĞER SIVILAR	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ	DİĞER YÜKLER	
INEBOLU	YÜK	134437	130855	2620						45		917
	BOŞ	160						160				
İSKENDERUN	YÜK	3137164	279878	394455		54030	49285	5531	2182187	56555	76544	16079
	BOŞ	6686470	79016	198703	3068885	1033233	214912	9215	2007549	10517	24310	40130
İSTANBUL	YÜK	878004	10200	3889		18642		14223	604955	802	225293	
	BOŞ	10603593	11963	129820	297976	4548861	225400	19516	1578470	9213	3779684	2690
İZMİR	YÜK	1115763	500	51374		500		50845	852658	38870	120266	750
	BOŞ	1002739	331478	10314	8524	16837		178405	278530	62788	112341	3522
İZMİT	YÜK	8705627	952	96380	250	5589078	275790	47211	2510966	3440	170202	11358
	BOŞ	19715135	217866	169159	1231176	9157664	1253119	909688	154338	5664895	890	584790
KARABİGA	YÜK	29200	9000						16670	150	1650	1730
	BOŞ	104744							2600		102144	
KARASU	YÜK											
	BOŞ											
KAŞ	YÜK											
	BOŞ											
KEFKEN	YÜK											
	BOŞ											
KDZ.EREĞLİ	YÜK	820584	900	81333				16885	375151	2638	343677	
	BOŞ	5750774	3123968	1808600		170515			588592		34424	24675
KUŞADASI	YÜK											
	BOŞ											
MARMARİS	YÜK	18							3	15		
	BOŞ											
MERSİN	YÜK	3709692	524940	539250		1594026		14784	612829	132292	281158	10413
	BOŞ	6349212	723018	43169		4067936	443215	374891	457441	82172	140190	17180
MUDANYA	YÜK	260006	256247						2752	1007		
	BOŞ	229391	2100	296		136213			34768		3094	52920
NEMRUT	YÜK	2600192	78024	10202		119789	1700	14391	2370086			6000
	BOŞ	4995238	38465	61651	185721	82588	234581	37957	62849	4274263	886	16277
ORDU	YÜK	17265	13575					1960	1680	50		
	BOŞ	28596	1650						4595	1758	354	20239

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1995 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTMANIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 4

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTE		
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞTIRILAN GAZ	DİĞER SIVILAR	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ		DİĞER YÜKLER	
PAZAR	YÜK BOŞ	14327		12027				1700			600		
RİZE	YÜK BOŞ	132366 118851	1293	132005		56534	34100		236 18257	125	5150 3517		
SAMSUN	YÜK BOŞ	436243 1619035	2203 179541	316141 393499		180251	303941	68403	41 426271	79110 5584	33798 5095	4950 9151	
SİLİVRİ	YÜK BOŞ	900 1039505		49830		2330		866884		91893		200 28568	
SİNOP	YÜK BOŞ	4341 3160		12		1980			36	103 1168	4202		
SURMENE	YÜK BOŞ	6220				4270				1600		350	
ŞİLE	YÜK BOŞ	2385 97400										2385 97400	
TAŞUCU	YÜK BOŞ	34306 127988		1870			6			25501 75072	1100 2593	5829 8157	43166
TEKİRDAĞ	YÜK BOŞ	467478 938501	303448 164235	1650		3680		320	13492 194337	146115 100560		250 182315	2523 4717
TRABZON	YÜK BOŞ	95059 905025	2843 37453	4370 1743		102460	32170 572128		328 144	49725 151082	2818	2805 26971	13044
UNYE	YÜK BOŞ	14960 213147		1600 900		114817	35246		60	13102 54474	198	4910	1057
VAKFIKEBİR	YÜK BOŞ	2550								2550			
ZONGULDAK	YÜK BOŞ	317461 71526		1110		303788				13648 66704	25	32	3310
TOPLAM	YÜK BOŞ	35735304 83295858	1133915 2699886	4435466 4678800	624525 8238267	1719300 23524600	11183239 12343665	358910 2774478	236985 1441388	14076001 20713877	286934 425931	1605863 5771035	74166 683931
TOPLAM		119031162	3833801	9114266	8862792	25243900	23526904	3133388	1678373	34789878	712865	7376898	758097

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 1

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA		KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLAŞTIRILAN GAZ	DİĞER SİVİLLER	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ		DİĞER YÜKLER
ALANYA	YÜK											
	BOŞ											
ALİAGA	YÜK	6310418	92340	36700	82000	4050439	7150	8800	2032989			
	BOŞ	14300368	92203	71704	191762	9234484	530321	175071	38397	3946386		20040
AMASRA	YÜK	25130		25130								
	BOŞ	2800					2800					
ANANUR	YÜK											
	BOŞ											
ANTALYA	YÜK	258911	500	140106			8070		1200	103684	3284	717
	BOŞ	1398158	22332	10401	69969		1040826			238407	704	14244
AYANCIK	YÜK											
	BOŞ											
AYVALIK	YÜK	560										
	BOŞ											
BANDIRMA	YÜK	1343559	1650	1247468	19150					75291		
	BOŞ	2052648	393148	683618	296239		2310	6028	99576	555848	15171	710
BARTIN	YÜK	174111								141307		32804
	BOŞ	266187		4100	35728					224049		1000
BODRUM	YÜK	50										45
	BOŞ	170										170
BOTAŞ	YÜK	2645523	9000		949	2313200	137850	17900		148124		18500
	BOŞ	8094806	569133	229591	573802	2935840	2807889	391650	74498	512403		
BOZCAADA	YÜK											
	BOŞ	1925						1925				
CIDE	YÜK	650										400
	BOŞ	2235										1270
ÇANAKKALE	YÜK	2283775	2950	8300						2269125		3400
	BOŞ	501360	3272		113463		4290			206106		173267
ÇEŞME	YÜK	1324								1244		80
	BOŞ	4359					3115			1244		
DATÇA	YÜK											
	BOŞ											

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1996 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTIMIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 2

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTİ
		HUBUBAT	MADEN CİVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLİŞİ GAZ	DİĞER SİVİLİŞİ	SANAYİ MAMULLERİ	TARIM ÜRÜNLERİ	
DİKLİ	YÜK	195873	100368	16840					78765		
	BOŞ	52756		620		50		33086	10000		
EDREMIT	YÜK										
	BOŞ										
ENEZ	YÜK										
	BOŞ										
ERDEK	YÜK	8600	4000			3700					
	BOŞ	96774				96774					
FATSA	YÜK	8366		600				238	5187	1164	1177
	BOŞ	143307		66593		3854			44761		1030
FETHİYE	YÜK	57150	57150								
	BOŞ	210410	2007			190703			6200		11500
FINİKE	YÜK										
	BOŞ										
GELİBOLU	YÜK	16478				10300			2652	26	3500
	BOŞ	243739	3000			32272			27390	10658	169650
GEMLİK	YÜK	477271	24507			14		8140	359319	2061	83230
	BOŞ	1958321	79288	458577		189576		31330	801548	85508	197448
GERZE	YÜK										
	BOŞ	750							750		
GİRESUN	YÜK	55942	920	44185					10672	165	
	BOŞ	128549	48582	585	2150		22400		32793	755	5803
GÖKÇEADA	YÜK	257958									257594
	BOŞ	3270					2470		364		800
GÖRELE	YÜK										250
	BOŞ	3060		2810							
GÜLLÜK	YÜK	805996	803422								2574
	BOŞ	9409	2815								6594
HOPA	YÜK	215266	205550				5774		3942		
	BOŞ	171722	5208	109479			53511		3524		
İGNEADA	YÜK	5391									
	BOŞ	200							2141		200
											3250

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1996 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTIMININ
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 3

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARİŞİK EŞYA			KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLAŞI GAZ	DİĞER SİVİLLER	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ	DİĞER YÜKLER		
İNEBOLU	YÜK	204053	201635						8	294	1430	686	
	BOŞ	23149									2100	21049	
İSKENDERUN	YÜK	2606280	32518	285899	28950	14075		7261	2091252	49621	88099	8005	
	BOŞ	7672808	185503	490965	3607455	1035634		9983	3204752	20717	15867	101932	
İSTANBUL	YÜK	1035247		34420	1550	16693		8698	700925	2940	269323	698	
	BOŞ	11049131	4821	71040	361571	11000	4723918	255474	42302	1603323	58032	3911189	6461
İZMİR	YÜK	1016611		54808		80		65944	721598	38996	135185		
	BOŞ	1249447	516724	12751		23748		117303	401261	74516	87047	16097	
İZMİT	YÜK	8009069	5200	106572	25000	5405419	291664	57263	1942167	6690	156904	12190	
	BOŞ	22645938	408718	284729	2579239	8173698	2865055	1139180	166285	5990849	4126	493382	540677
KARABİGA	YÜK	25069		7564					16005		1500		
	BOŞ	145578		1000					700		143878		
KARASU	YÜK												
	BOŞ												
KAŞ	YÜK												
	BOŞ												
KEFKEN	YÜK												
	BOŞ												
KDZ.EREĞLİ	YÜK	1343900	1000	950	101238				761752	4950	474010		
	BOŞ	5969524		3366510	1745760		181554		621990		21800	31910	
KUSADASI	YÜK												
	BOŞ												
MARMARIS	YÜK												
	BOŞ												
MERSİN	YÜK	3392698	337711	361586		61200	1247856		21617	909829	179182	269287	4430
	BOŞ	6301491	746359	104327		3306152	729855	34000	425796	651031	79590	221738	2643
MUDANYA	YÜK	132022		121955					76	9891			
	BOŞ	246682		1000	7548		132656			96462		8816	
NEMRUT	YÜK	768173		14120	900	80000	348100			325053			
	BOŞ	1632662	10000	15710	46721	814861	54500	24068		660652		6150	
ORDU	YÜK	21828		13740						8088			
	BOŞ	81713								19638		830	61245

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1996 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTIMININ
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 4

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA			KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLİST GAZ	DİĞER SİVİLİST	SANAYİ MAMÜLLERİ	TARIM ÜRÜNLERİ	DİĞER YÜKLER		
PAZAR	YÜK BOŞ	17984		17984									
RİZE	YÜK BOŞ	171756 126483	167190		83476	19400			2620 17437	1938	2950	3220	
SAMSUN	YÜK BOŞ	272184 2302546	8922 401631	248228 564206	396313	366771	69001	46041	50 8937 444680	4947 7545	1100 4963	1395	
SİLİVRİ	YÜK BOŞ	2220 1919585		33350		1470	514780		750 1338255		33200		
SİNOP	YÜK BOŞ	4226 2960			1920				65 20 1040	4141			
SÜRMENE	YÜK BOŞ	2860 14790	950		11790					2670	1910 330		
SİLE	YÜK BOŞ	117287									117287		
TAŞUCU	YÜK BOŞ	4230 116785	250 750			142			3730 91985		250	23908	
TEKİRDAĞ	YÜK BOŞ	238143 1459462	65385 225860	600	92345	750	2980	20237 126886	124649 305303	23500 398157	2672 294073	350 13858	
TİREBOLU	YÜK BOŞ												
TRABZON	YÜK BOŞ	47649 897816	7314 53659	2390 2835	256125		463875		216 13196 89401	3262	21271 31921		
ÖNYE	YÜK BOŞ	13770 234229		2907	105102		59413		13770 57202		8709	896	
VAFKİKEBİR	YÜK BOŞ	3000							3000				
ZONGULDAK	YÜK BOŞ	327349 75227		2511	324349 9633				3000 61947			1136	
TOPLAM	YÜK BOŞ	34787739 93953560	474270 3690903	4349953 6037951	581356 11244174	2538620 24476035	11248970 15644787	316714 2609252	201609 1212727	12893404 21290137	327241 755479	1823131 5993996	32391 998119
TOPLAM		128741299	4165173	10387904	11825530	27014655	26893757	2925966	1414336	34183621	1082720	7817127	1030510

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 1

TABLO : 3

LIMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA		KERESTE
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILASTIĞAZ	DİĞER SIVILASTIĞAZ	SANAYİ MAMULLERİ	FARIN ÜRÜNLERİ	
ALANYA	YÜK BOŞ	3048		3048							
ALIAGA	YÜK BOŞ	6808569 15711602	11000 144559	52254 79911	5000 177767	4348761 9338091	742006 309581	1200 46343	2390354 4700675	1316	170810 543
AMASRA	YÜK BOŞ	32530			32530						
ANAMUR	YÜK BOŞ										
ANTALYA	YÜK BOŞ	249375 1412834		152118 3090		21951 1003117			72891 300225	2415	25650
AYANCIK	YÜK BOŞ	893570 3586						891760 3550			1810
AYVALIK	YÜK BOŞ	953 8251						918 8240	35 11		
BANDIRMA	YÜK BOŞ	1365930 1874696	35926 357385	1109229 352155	62722		1300	1134 95542	12750 987579	200591	6310 2250
BARTIN	YÜK BOŞ	213143 1194922	5490 7695	5150 1080	20652		5000		175411 1135821		26912 2152 13522
RODRUM	YÜK BOŞ	273							5		238 30
BOTAŞ	YÜK BOŞ	31136067 8766351	103796 513204		13540 1072404	30659571 4509064	178121 1399585	29951 522846	1500 22498	128538 510742	21050 2546
ROZCAADA	YÜK BOŞ	406257 2080		122598			1945		135	252546	31123
CIDE	YÜK BOŞ	380 5943	80 320						2400	36	300 1300 887
ÇANAKKALE	YÜK BOŞ	2191145 512348	1000 3323	5650	92152		4385		2184495 175480	1680	234621 707
ÇEŞME	YÜK BOŞ	382 6846					210 6846		44	128	
DATÇA	YÜK BOŞ										

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MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 2

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK EŞYA			KERESTE
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SİVİLASE GAZ	DİĞER SİVİLAR MAMÜLLERİ	SANAYİ	TARIM URUNU	DİĞER YÜKLER	
DİKİLİ	YÜK	214784	110186	4050		50		1000	99498			
	BOŞ	37708				180		33528	2970			1030
EDREMIT	YÜK											
	BOŞ											
ENEZ	YÜK											
	BOŞ											
ERDEK	YÜK	4150	3350						800			
	BOŞ	99861					99861					
FATSA	YÜK	24858	13450					942	9782	684		
	BOŞ	129503		47339					64532			17632
FETHİYE	YÜK	65177	65177									
	BOŞ	222252	2004			201061			7537			11650
FINİKE	YÜK											
	BOŞ											
GELİBOLU	YÜK	4700										4700
	BOŞ	275598				18936			16610	69353		166595
GEMLİK	YÜK	554943	27375					40640	464028			22900
	BOŞ	1889706	5568	59502	170650	197805	3174	43852	1070854	62380		128774
GERZE	YÜK											
	BOŞ	800							800			
GİRESUN	YÜK	56339	2620	25744					27975			
	BOŞ	129609	58637		4252		36750		18480			4992
GÖKÇEADA	YÜK	1470										790
	BOŞ	4215					840		680			3375
GÖRELE	YÜK											
	BOŞ	3644	600		2359				200			485
GÖLLÜK	YÜK	976412		973412								3000
	BOŞ	39414		7921								27119
HOPA	YÜK	174549		172290	1300				308	340		311
	BOŞ	215301	5168		132429		77421		283			
İGNEADA	YÜK	6427										
	BOŞ								6027			400

T.C. BAŞBAKANLIK
DENİZCİLİK MÜSTEŞARLIĞI
DENİZ ULASTIRMA GENEL MÜDÜRLÜĞÜ (EBİM)
1997 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEM VE BOŞALIMIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 3

TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK				KARIŞIK ÜSYA		KERESTE	
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILASTI GAZ	DİĞER SIVILAR	SANAYİ MAMULLERİ	TARIM ÜRÜNLERİ	DİĞER YÜKLER	
INEBOLU	YÜK	260042		251030					5930	951	600	1527
	BOŞ	10855				2193						8662
ISKENDERUN	YÜK	3416292	132556	413627	8300	15250		7230	2237464	30793	59596	11416
	BOŞ	7680677	145560	553501	3289144	1032997		8361	2500439	7666	86508	56501
İSTANBUL	YÜK	1459095	16521	4576	2275	10487	91060	5500	7706	922944	1950	395975
	BOŞ	13086877	61347	123979	284559	54135	5386856	276242	54788	1751419	99464	4989940
İZMİR	YÜK	900664	2540	17136					50490	691484	113994	500
	BOŞ	1227317	455649	3000	11979		17531		122138	292661	22106	156654
İZMİT	YÜK	8197530	218723	126079			5352052	303703	41437	2004148	7495	143563
	BOŞ	25645210	574711	335680	1856862	11265838	2126708	1339213	166004	6739756	1826	880757
KARARIGA	YÜK	34346	2230	13035						8545		10536
	BOŞ	188632		1306						1900		185426
KARASU	YÜK											
	BOŞ											
KAS	YÜK											
	BOŞ											
KEFKEN	YÜK											
	BOŞ											
KDZ.EREĞLİ	YÜK	1737586	1000	91061		4000			1000	1202231	180	437470
	BOŞ	6939801		3827339	1983064	134245				925188		39421
KUŞADASI	YÜK											
	BOŞ	200				200						
MARMARİS	YÜK											
	BOŞ	2371	1			2370						
MERSİN	YÜK	3821353	481686	227450	5	34001	1542255		23738	1229934	88628	191047
	BOŞ	6487918	1122746	73461	774	3394757	506031		467211	544363	111452	253901
MUDANYA	YÜK	93780	180	87612					60	5291		637
	BOŞ	247520	1780			1500	154250			40363		4590
NEMRUT	YÜK											
	BOŞ											
ORDU	YÜK	32084		25050						7034		
	BOŞ	125329		2900						15218		1150
												106061

T.C. BAŞRAKANLIK
DENİZCİLİK MÜSTESARLIĞI
DENİZ ULAŞTIRMA GENEL MÜDÜRLÜĞÜ (FRİM)
1997 YILINDA DENİZ YOLUYLA LİMANLARIMIZDAN YAPILAN YÜKLEME VE BOŞALTMANIN
MADDE CİNSLERİNE GÖRE DAĞILIMI
DÖNEMİ (OCAK -ARALIK)

BİRİM : TON
SAYFA : 4

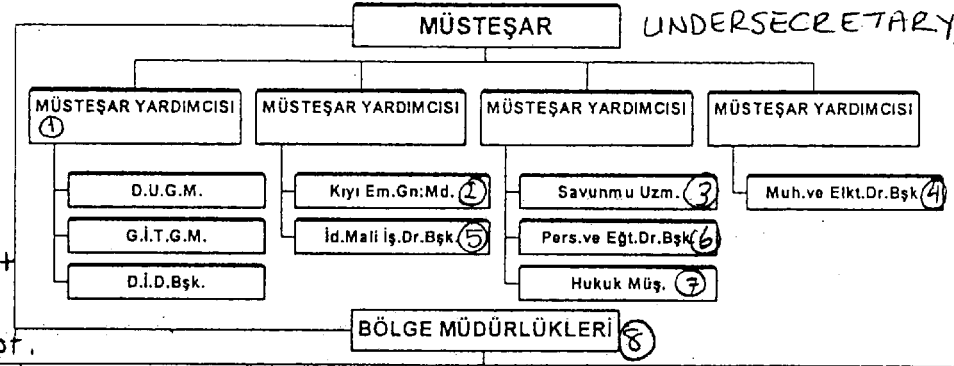
TABLO : 3

LİMAN ADI	TOPLAM	DÖKME YÜK			SIVI DÖKME YÜK			KARIŞIK EŞYA			KERESTE
		HUBUBAT	MADEN CEVHERİ	KÖMÜR	HAM PETROL	PETROL ÜRÜNLERİ	SIVILAŞT GAZ	DİĞER SIVILAR	SANAYİ MAMULLERİ	TARIM ÜRÜNLERİ	
PAZAR	YÜK 1950 BOŞ 14140			1950 11260					2880		
RİZE	YÜK 211787 BOŞ 148807	450 1050	201900	83222		8100 41110			1297 22511	40	250 664
SAMSUN	YÜK 484810 BOŞ 2449472	55460 503611	259685 549250	381922		1000 336866	78347	61654	166174 492730	1146	695 20989 24103
SİLVİRİ	YÜK 5500 BOŞ 2205962		39000		2800	1400 173212	1593200		600 365300		700 35250
SİNOP	YÜK 7409 BOŞ 991							251 51	2647 53	4311	200 887
SÜRMENE	YÜK 4600 BOŞ 20440			19240					700		4600 500
SİLE	YÜK BOŞ 133011	2800									130211
TAŞUCU	YÜK 18027 BOŞ 88831					384			18027 79440	3988	5010
TEKİRDAĞ	YÜK 291104 BOŞ 1581357	123584 293394		79700		1375		51552 147550	112722 420855	600 303837	1746 320576 6071
TİREBOLU	YÜK BOŞ										
TRABZON	YÜK 42703 BOŞ 830740	19790 102687	800 700	279985		374693		113	2299 49411	3372	16255 19084 4180
ÖNYE	YÜK 21400 BOŞ 306206	340	6000	77967		120508			21060 55181		46550
VAFKİKEBİR	YÜK BOŞ 4750								4750		
ZONGULDAK	YÜK 296666 BOŞ 106059	19	950	288523 1153		1670		1000	8143 98806		2461
TOPLAM	YÜK 66709109 BOŞ 102079668	1214972 4378704	4469001 6236191	448534 10216042	30706859 28563385	11564210 14210327	340288 4122603	1134655 1291178	15146958 23496524	167213 756119	1495757 7934559 20662 874036
TOPLAM	168788777	5593676	10705192	10664576	59270244	25774537	4462891	2425833	38643482	923332	9430316 894698

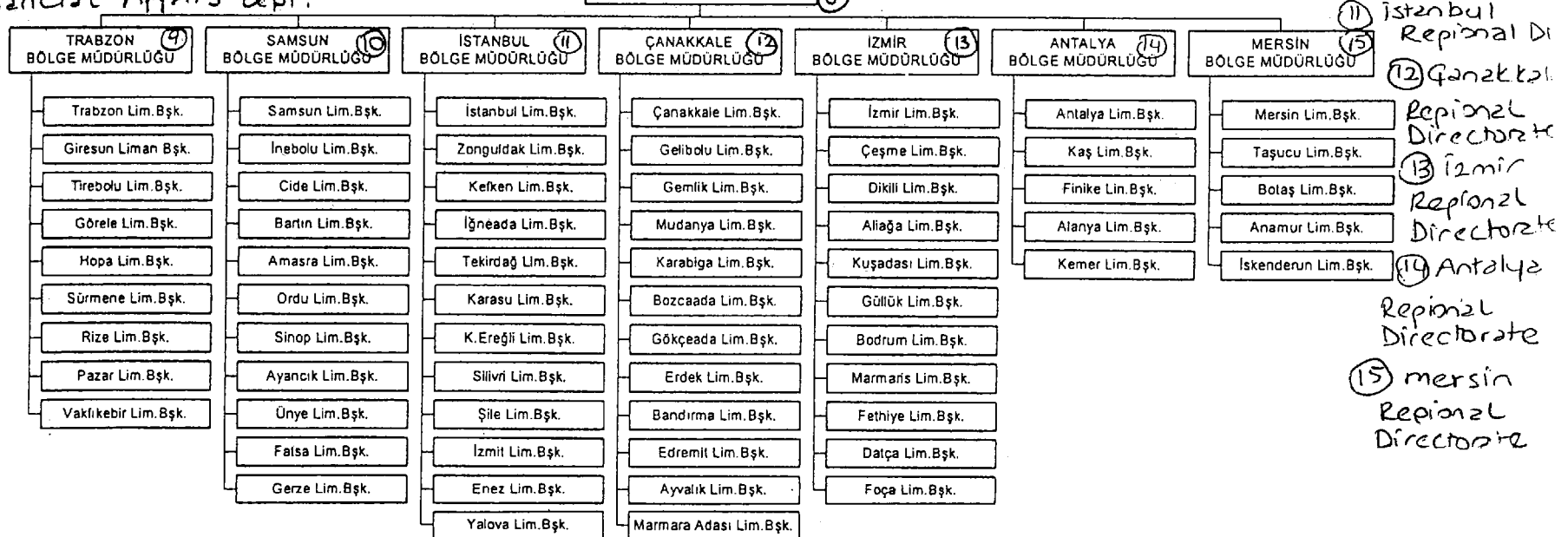
T.C.
BAŞBAKANLIK
DENİZCİLİK MÜSTEŞARLIĞI

T.R.
PRIME MINISTRY
UNDERSECRETARIAT OF MARITIME

- ① Deputy Undersecretary
② General Directorate of Coast Security
③ Defence Council
④ Communication and Electronics Department
⑤ Administration and Financial Affairs Dept.



- ⑥ Personnel and Education Department
⑦ Legal Counsellor
⑧ Regional Directorate
⑨ Trabzon Regional Directorate
⑩ Samsun Regional Directorate



EK-10

THE MARINE ACCIDENTS IN TURKISH BOSPHORUS STRAIT UP TO YEARS

TÜRK BOĞAZLARINDA MEYDANA GELEN DENİZ KAZALARININ

İSTANBUL BOSPHORUS

YILLARA GÖRE DAĞILIMI

İSTANBUL BOĞAZI: TOTAL SHIP NO.

RUN AGRAD

FRICTION

TOTAL ACCIDENTS

YILLAR YEARS	TOPLAM GEMİ SAYISI	ÇATIŞMA DISPUTE	KARAYA OTURMA	SÜRTÜNME	TOPLAM KAZA
1990	-	-	-	-	43
1991	-	-	-	-	49
1992	-	-	-	-	39
1993	-	-	-	-	25
1994	1 TEMMUZ 1994 BOĞAZLAR TÜZÜĞÜ ÖNCESİ				10
1994	1 TEMMUZ 1994 BOĞAZLAR TÜZÜĞÜ SONRASI				2
1995	46.954	4	-	-	4
1996	49.952	2	5	-	7
1997	50.942	2	6	3	11

JULY 1 1994 BEFORE
THE BOSPHORUS REGULAT
JULY 1 1994 AFTER
THE BOSPHORUS REGULAT

CANAKKALE BOSPHORUS

CANAKKALE BOĞAZI:

YILLAR	TOPLAM GEMİ SAYISI	ÇATIŞMA	KARAYA OTURMA	SÜRTÜNME	TOPLAM KAZA
1995	35.460	1	10	1	12
1996	36.198	3	7	-	10
1997	36.543	-	5	-	5

THE DETAILED INFORMATION ON THE ACCIDENTS OCCURRED
IN ÇANAKKALE AND İSTANBUL BOĞAZLARI IN 1997 IS
BELOW.

2. (16) Çanakkale ve İstanbul Boğazlarında 1997 yılında meydana
gelen kazaların ayrıntılı bilgileri aşağıdadır.

AR
SION

GEMİNİN SHIP'S				OLAYIN EVENT'S				
ADI NAME	TİPİ TYPE	GRT	BAYRAĞI FLAG	YERİ PLACE	TARİH DATE	SAAT TIME	TÜRÜ TYPE	NEDENİ REASON
HÜSTİN AVOI	KURUYUK DRYLOAD	555	TÜRKİYE TURKEY	KEPEZ FENERİ GÜNEYİ SOUTH OF KEPEZ FENERİ	03/01/97	09.05	OTURMA RUN AGROUND	MAKİNA ARIZASI MACHINE DEFAULT
TISHANA	KURUYUK DRYLOAD	2075	ROMANYA ROMANIA	KEPEZ FENERİ GÜNEYİ SOUTH OF KEPEZ FENERİ	20/01/97	01.00	OTURMA	FAULTY HATALI SEYİR SAILING
ALİET KARACEMAN	TANKER TANKER	4147	TÜRKİYE TURKEY	KANLİDERE FENERİ GÜNEYİ SOUTH OF KANLİDERE FENERİ	18/03/97	02.50	OTURMA	MACHINE MAKİNA ARIZASI DEFAULT
NADYA	KURUYUK DRYLOAD	487	TÜRKİYE TURKEY	KANLİDERE FENERİ GÜNEYİ SOUTH OF KANLİDERE FENERİ	12/08/97	11.50	OTURMA	FAULTY HATALI SEYİR SHIPPING
ANTİKA FATMA	DÖKMECİ	21941	SİNGAPUR SINGAPORE	MARA BURNU KUZUYI NORTH OF MARA CAPE	18/12/97	21.10	OTURMA	FAULTY HATALI SEYİR SHIPPING

1997 YILI İSTANBUL BOĞAZI
DEMİR YERİ DENİZ KAZALARI

IRINE
CIDENTS
İSTANBUL
PHORUS
1997

GEMİNİN SHIP'S				OLAYIN EVENT'S				
ADI NAME	TİPİ TYPE	GRT	BAYRAĞI FLAG	YERİ PLACE	TARİH DATE	SAAT TIME	TÜRÜ TYPE	NEDENİ REASON
NEFTERU- DOVUZ-58	KURU YÜK	2615 113m.	RUSYA RUSSIA	AHIRKAPI DEMİR YERİ	08.04.1997	1030	GATIS- HA	MEDİZ G. GARPHASI
MEDİZ	LURU YÜK	3689 115m.	MALTA MALTA	" "	" " "	" "	" "	" "
MARIYA YERHOLDI- VA	YOLCU	4364 100m.	RUSYA RUSSIA	" "	" " "	" "	" "	MEDİZ G. GARPHASI
ALCAN-1	LURU YÜK	294 43 m.	TÜRKİYE TURKEY	" "	27.05.1997	1530	" "	YOL. 5038 GARPHASI
VOLGİDAN 5038	LURU YÜK	3994 138m.	RUSYA RUSSIA	" "	" " "	" "	" "	HATALI SEYİR
M.İ. BE- 1110GLUZ	LURU YÜK	1957 84 m.	TÜRKİYE TURKEY	" "	10.06.1997	2120	" "	" "

THE SUBJECTS THAT HAVE PRIORITY IN THE MARITIME SECTOR

- I. **THE SUBJECTS THAT ARE DIRECTLY RELATED WITH THE UNDERSECRETARIAT OF MARITIME**
- a. Formulation of Ministry of Maritime Law,
 - b. Formulation of Turkish International Ship Registration Law,
 - c. Formulation of Turkish Bosphorus Strait Marine Traffic Order Regulation,
 - d. Procurement of the Project of Turkish Bosphorus Marine Traffic System (Radar- Stations- Communication System),
 - e. Formulation of the Regulations on Guide and Tractor Services Organizations,
 - f. At some of the ports as the Regulations are valid the corrections that the Undersecretariat of Maritime ordered can not be applied.
 - g. Port Regulations - the publication of the Rules/Regulations of the Ports whose Instructions have not been given yet.
 - h. The decreasing of the high Port Fees, Privatization of Port Services.
 - i. Making the obligation of taking tractor as it is ordered in the Port Regulations arbitrary.
 - j. Completing the privatization of public ports,
 - k. Starting the effective application of Port Country Control Service .
 - l. Abolishing the %15 public share taken from the private Landing-place that are constructed in order to realize Port Administration.
 - m. Supporting Turkish Tanker and LNG Fleet.
 - n. Allocation of KARAKÖY and SALIPAZARI quays to Passenger Tourism and ZEYTİNBURNU - SİRKECİ and HAYDARPAŞA Quays to Suitcase trade.
 - o. Formulation of Aqua-sports Regulations
 - p. Changing the seamen's licence due to Seamen's Regulations and arranging these licences due to International standards. (DTO is volunteer for the publishing of the licences).

II. MARITIME SUBJECTS RELATED TO OTHER MINISTRIES

- a. By making changes in Ship Health Official Regulation , regarding “PERMISSION” as one of the occasions that does not disturb transit,
- b. Formulation of YPK Law,
- c. Privatization of ports and other public maritime organizations,
- d. Acquiring long - term low rate International credit and restrengthen GISAD fund,
- e. Ensuring the penetration of Maritime Companies to the Capital Markets and Leasing issues.
- f. Correction of Manifest item in the Customs Law and deducing the Global Deposits,
- g. Giving the status of Free Zone to Tuzla Shipyard Region.
- h. Solving the mortgage and abroad deposit problems of Shipyards.
- i. The make the procedure of employing foreign officers in Turkish flag ships easier,
- j. Taxation Laws concerning Ministry of Finance;
 - The transportation between 3rd countries should not be considered as abroad transportation.
 - Taking Value Additional Tax (V.A.T) while making sub-contractor payments.
 - While importing vessels within the frame of 2581, not taking import fee.
 - Not taking stamp tax form the agreements for vessel buying from abroad.
 - Not taking stamp tax from Charter-parties,
 - Not looking for Ministry of Finance’s permission in abroad foreign bills credits estate mortgage.
 - The usage of renovation fund out of a profit from the selling of a vessel in buying new vessels,
- k. Giving the building-plot of our Chamber building that belongs to Foundation to our Chamber,
- l. Actualization of Marine Employment Regulation Draft,
- m. The Easement Fee of the shipyards should be deduced to reasonable level, (related to General Directorate of National Estate) and the standardization of the agreements,
- n. Overthrow of the fictive area belonging to the Undersecretariat of Maritime to the Union of Shipbuilding Industrialists,
- o. Forming Marine Sensation Courts,
- p. Re-determination of the areas of sea fishing that effects Marine and Yatch Tourism positively,
- q. The usage of incomes from Marine and Yatch Tourism in Marine Tourism.

REPUBLIC OF TURKEY
UNDERSECRETARIAT FOR MARITIME AFFAIRS
GENERAL DIRECTORATE OF MARITIME TRANSPORTATION

SEAFARERS RULES AND
REGULATIONS

1997

Regulations of Training, Certification, Examination,
Watchkeeping, Registration and Manning for Seafarers.

Regulations on Seafarers Exams and
Subject Contents

Regulations on Manning of Ships

Chapter I

Purpose and Endorsement, Containment, Definitions

Purpose and Endorsement

Article 1. This certificate is prepared in order to show the number and the competence of the seafarers that the merchant ships need to maintain sea worthiness, by considering the "International Convention on Standards of Training, Certification and Watch keeping For Seafarers, 1978 (STCW-78) that we became the party depending on the 20-04-1989 dated and 3539 numbered law related with the "safety of life and property at sea, and 07-02-1996 dated and 3612 numbered law, article 2, paragraph D.

Containment

Article 2. This certificate regulates and contains the process of training, certification, examination and assessment, watch keeping, stocking and manning for seafarers serving/will serve, on board the ships entitled to fly the Turkish Flag in national and international provisions.

Definitions

Article 3. For the purpose of certificate.

I. Party and Convention

- a. **Party** : Republic of Turkey Undersecretariat for Maritime Affairs
- b. **Convention** : STWC 78, and amendments of STWC 95

II. Seagoing Vehicles

- a. **Ship** : A seagoing ships which navigates in inland waters or in sea no matter what the purpose, name and weight is.
- b. **Merchant Ship** : A merchant ship, carrying more than 12 passengers.
- c. **Cargo Ships** : A merchant ship, carrying cargo and passengers less than 12.
- d. **Fishing Vessel** : A merchant ship used for catching fish, whales, seals, walrus or other living resources of the sea and storing them.
- e. **Service Ship** : Merchant ships used in special purposes scientific research, test boring, factory, rescue, cable and tugboat, crane barge, dredge, control, masting machine, diver vehicle and personnel carriers.
- f. **Trade Yachts** : Build as yacht type, used for cruise and sport, carry not more than 12 passengers, not having the qualification of cargo and passenger ships or having the qualification of passenger ships due to the international Technical provisions, and carry more than 12, less than 36 passengers, and in the tonnage license must be declared as "trade yachts."
- g. **Pleasure Yachts** : Build as yacht type, used for cruise and sport, carry not more than 12 passengers and in the tonnage license must be declared as "pleasure yachts."
- h. **Passenger Motorboat** (Amendments:22951-1/4/1997) : A trade ship used for carrying passengers, working in harbour or harbours restricted with 100 miles and, the length is under 40 meters.

III. Persons

- a. **Seafarer** means master, officers, assistant officers, crew and assistant service staff.
- b. **Master** means the person having command of a ship.
- c. **Officer** means a member of the crew, other than the master, designated as such by national law or regulations or, in the absence of such designation by collective agreement or custom.
- d. **Chief Mate** means the officer next in rank to the master and upon whom the command of the ship will fall in the event of the incapacity of the masters.
- e. **Watch keeping Officer** means the officer who is in charge of a navigational watch.
- f. **Chief Engineer Officer** means the senior engineer officer responsible for the mechanical propulsion and operation and maintenance of the mechanical and electrical installations of the ship.
- g. **Second Engineer Officer** means the engineer officer next in rank to the chief engineer officer and upon whom the responsibility for the mechanical propulsion, and electrical installations of the ship will fall in the event of the incapacity of the chief engineer officer.
- h. **Engineer Officer** means the officer who is in charge of watch keeping in the engine department of the ship.
- i. **Assistant Officer** means doctors, nurses and depending on the characteristics of the ship; nuclear, electronic, mechanical engineers and technicians, computer programmers, scientists who work on scientific ships.
- j. **Radio Officer** means a person holding an appropriate certificate issued or recognised by the administration under the provisions of the radio regulations. (ITU/RR)
- k. **Radio Operator** means a person who has the qualification of being a radio operator, depending on the ITU/RR regulations.
- l. **Radio Electronic Officer** means a person holding an ITU/RR regulations certificate and worked in ships manned in compliance with GMDSS as a "First" or "Second" Radio electronic officer.
- m. **Restricted Radio-Telephone Operator** means a person who has a competence of being restricted radio-telephone operator, depending on ITU/RR regulations.
- n. **General Operator** means a person who has a competence of being a general operator in a ship manned in compliance with GMDSS.
- o. **Restricted Operator** means a person who has a competence of being a restricted operator depending on ITU/RR regulations in a ship manned in compliance with GMDSS.
- p. **Assistant Watchkeeping Officer** means a person under training to become a watch officer and designated as such by national law or regulations.
- q. **Amateur Seafarer** is an amateur person who can plan a voyage and conduct navigation of trade yachts up to the 18 gross tonnage and private yachts up to the 50 gross tonnage.
- r. **Rating** means a member of the ship's crew, who works on deck, engine and cabin departments of ship, other than the master or an officer/assistant officer.
- s. **Other Personnel** means the owner's, manager's, master's, seafarer's and officer's wives and children who are on board, representatives of the owner, shepherds of the animals, the casualties who are taken on board as a result of master's life-saving operations and the drivers of the vehicles carried by Ro-Ro's. Amendment paragraph 22951-1/4/1997 travelling license is given to the persons other than the seafarers and passengers by the chief of harbour.
- t. **Passenger** is a person who is on board other than the seafarers, older than one-year old, with or without free of charge.

IV. Technical Definitions

- a. **Radio Regulations** include the international radio regulations ITU/RR which Turkey is a party.
- b. **Radio Duties** include, as appropriate, watch keeping and technical maintenance and repairs conducted in accordance with the radio regulations, the international convention for the safety of life at sea and, at the discretion of each administration, the relevant recommendations of the organisation.
- c. **GMDSS** is an abbreviation of Global Maritime Distress and Safety System.
- d. **Propulsion Power** means the total maximum continuous rated output power in kilowatts of all the ship's certificate or registry or other official document. 1 kilowatt (kW) = 1.34 Horse Power (HP). 1 Horse Power (HP) = 0.746 kilowatt.
- e. **Gross Tonnage** is the ship's tonnage which is determined by the certificate and the official documents as a GT.

V. Voyage Regions

- a. **Harbour Voyages.** Cruises done in the harbours which the borders are known and if the borders are not known, cruises done not more than 25 miles from the main quay.
- b. **100 mile Restricted Region.** Voyages done not more than 10 miles from the nearest coast and voyages done not more than 100 miles from the departure harbour's main quay.
- c. **Cabotage Voyages.** Cruises done among the Turkey's harbours.
- d. **Middle Voyages.** Cruises the live which is connected to on the east side of the Black Sea, Mediterranean Sea and Gibraltar Strait and in the Atlantic Ocean, Finisterre Cape, the north coast of Spain, Dakhla quay of Mauritania; and cruises done in the Suez Canal, Red Sea and Aden, the east border of Alula quay of Somalia (**APPENDIX-1**).
- e. **Unlimited Voyages.** Voyages which covers all over the World seas (**APPENDIX-1**).

Chapter II

Training and Certification of Seafarers Who Work on Cabotage and Harbour Voyage Ships, Fishing Vessels and Yachts.

Level of Competency

Article 4. Competency levels of seafarers are given below.

I. Deck Division

- a. Ratings;
 - 1. Deck boy
 - 2. Ordinary seaman
 - 3. Able seaman
 - 4. Boatswain
- b. Master and Deck Officers;
 - 5. Port Captain
 - 6. Coastal Master

II. Engine Division

- a. Ratings;
 - 1. Wiper

2. Fireman
3. Oiler (Motorman)
4. Donkeyman
- b. Chief Engineer and Engineer Officers;
 5. Marine Motor Technician
 6. Marine Mechanic Technician

III. Assistant Class

- a. Assistant Engineer Officer
- b. Other Personnel

IV. Amateur Seafarer

V. Yacht Master

VI. Skipper

Limitation of Competency

Article 5. Masters and officers of cabotage and harbour voyage ships, yachts and fishing vessels can not be employed on the near coastal voyage and ocean going ships without carrying out the conditions determined on the IV. sections of the Convention. But masters and officers who work on these ships and/or masters and officers having the competence of ocean going are out of this concept.

When the yachts and fishing vessels set sail for near coastal voyage or ocean going voyage, they may keep their Master and crew who are certified for harbour voyage.

Seafarers who work on cabotage and harbour voyage ships, yachts and fishing vessels

Article 6. The definitions of the masters, chief engineers and officers who work on cabotage and harbour voyage ships, yachts and fishing vessels are given below.

a. Amateur Seafarer

1. In order to have an Amateur Seafarer certificate, one must have the qualifications given 37. article of this regulation and must be successful in the exams done by the administration.
2. Amateur Seafarer certificate is given to the Petty officers who work in the Naval Forces without having any exams.

b. Yacht Master

For certification as Yacht Master

1. 2500 mile journey as a master with 3 year Amateur Seafarer certificate.
2. To document 4000 mile outer harbour voyage as an Amateur Seafarer with 5 year amateur seafarer certificate and to be successful in the exam in order to be a Yacht Master.

The ones who document that they had the foreseen lessons in their education period and have the qualifications of engine class competence in order to be a Yacht Master and the naval officers who work in the Naval Forces have the mentioned certificate without having any exams.

c. Port Captain

Every candidate for certification shall be not less than 18 years of age.

1. Having approved three year service as an able seaman in which 1 year must be served as a helmsman.
2. With a competence certificate of being a boatswain and 1 year approved in service experience.
3. To the graduates of the deck departments of three yeared naval technical lycee and deck fishing departments water products technical lycee.
4. The graduates of Süleyman Demirel University-Eğridir Nautical Products Faculty, Ege University-Deck Department of Vocational College, Firat University- Nautical Products Faculty, Firat University-Keban Vocational College, Istanbul University- Nautical Products Faculty or the ones having approved training programme the administration for the above certificate of competence in their educational period and graduate.
5. Port Captain competence certificate is given to the petty officers, graduated from the petty officer deck school or others but had the navigation and ship handling courses, following their leaving the navy experience must have at least six year in service, three years of this period must be on board, if they pass the Port Captain competence examination (amendment paragraph : 22951-1/4/1997). If the ones, who had a competence of being a Yacht Master until 1/2/1997, demand to have a Port Captain certificate, by cancelling their Yacht Master certificate, Port Captain certificate is given.

d. Coastal Master

Every candidate for certification shall be not less than 18 years of age.

1. Having approved 5 years in service experience as an Able Seaman (2 years must be served as a helmsman).
2. With a competence certificate of being a Boatswain and approved 2 years in service experience candidate.
3. With a competence certificate of being a Port Captain must have 1 year approved in service experience as master or with the mentioned certificate, two year approved in service experience.
4. The graduates of Çukurova University-Faculty of Nautical Products, Sürmene Faculty of Nautical Sciences, Fishing Technology Engineering School, 19 Mayıs University- Sinop Faculty of Nautical Products, Deck Division of Ordu Naval Technical Lycee, Istanbul University-Technical Sciences Vocational Collage Department of Underwater Technology, Çeşme Nautical Products Vocational Collage Department of Maritime, and the graduates of the schools which the competence of Coastal Master certificate is not given during their educational period, but given later or the candidates having approved to the administration that they had the foreseen lessons in their educational period and graduate.
5. Coastal Mastern competence certificate is given to the petty officers, graduated from navigation division of the petty officer school or graduated from the other divisions but had the navigation and ship handling courses. The candidates must have et least nine years approved in service experience four years of this period must be on board, if they pass the Coastal Master competence examination.

The ones who had this competence because of the training, can not be a master without one year in-service experience.

e. Skipper

If the candidate has a Port Captain competence certificate, he may directly get the master of fishing vessel competence certificate. And the able seaman worked 3 years in service experience fishing vessels may have the mentioned certificate if they pass the Skipper competence examination.

f. Marine Motor Technician

Every candidate for certification shall be not less than 18 years of age.

1. Having approved 4 years in service experience as an oiler or 1 year of duty as a Donkeyman in the power-driven vessels or worked 3 years as a diesel locomotive driver on the railways.
2. Graduates of Institutes of Art, Industry Vocational Lycee or technical lycee, departments of motor or engine departments.
3. Naval Motorman Competence certificate is given to the petty officers, graduated from the Naval Petty Officer Engine School departments of motor or paddle-wheel or graduated from the other divisions but had a motor course, following their leaving the navy must have at least 6 years experience, three years of this period must be on board.

If they pass the Marine Motor Technician competence examination.

g. Marine Mechanic Technician

Every candidate for certification shall be not less than 18 years of age.

1. Having approved one year in service experience as a Naval Motorman or two years in service experience as a donkeyman, or 6 years in service experience as an oiler on a steam boats powered by 370 kw power or more or on the ships powered by main propulsion machinery of 185 kw propulsion power or more.
2. Graduates of Maritime Lycee / Technical Lycee's Maritime and Nautical Productions Lycee's Engine or ship engines sections and ship engine sections of motor or Industry Technical Lycees, motor, ship engines or motor-mounting sections of ship building lycee.
3. The graduates of Yıldız University-Technical programmes sections, Engine technology programme of İzmit Collage, Middle East Technical University, Kahramanmaraş and Gaziantep Collages, Motor and Engineering sections, Sakarya University Vocational training collage, motor and engineering sections, Niğde vocational collage, technical department, Mustafa Kemal University, Antakya vocational training collage, engineering and motor sections, Uludağ University, Bursa vocational training collage, motor and engineering sections, Trakya University, Tekirdağ Agriculture Faculty, vocational training collage, motor and engineering sections, İskenderun vocational training collage, motor and engineering sections and the graduates of the schools which the competence of Marine Mechanic Technician certificate is not given during their educational period, but given later or the candidates having approved to the administration that they had a foreseen lessons in their educational period an graduate.
4. Marine Mechanic Mechanician competence certificate is given to the petty officers graduated petty officer engine school, departments of motor or paddle-wheel or graduated from the other divisions but had a motor course, following their leaving the navy must have at least 9 years in-service experience, 4 years of this period must be on board.

If they pass the Marine Mechanic Technicien competence examination, the ones who had this competence because of the training they had, can not be a chief engineer without one year in-service experience.

Masters Work on the Passenger Ships in the Inland Waterways

Article 7. Coastal Masters who will work on the ships that carry more than 100 passengers.

- a. In order to be a master in Istanbul-Çanakkale Strait, İzmir or Gulf of İzmit, one must work in one of these at least two years of duty as a helmsman.
- b. In order to be a master in the Bosphorus, Islands and Anatolia Lines, one must work in one of these lines at least two years of duty as a helmsman.
- c. For the seafarers, who worked on the inland waterway ships, (passenger capacity more than 1000) at least two year in-service experience as a helmsman and having the competence of being a coast master must have in-service experience half of services time given in (a) and (b) paragraphs above.

The approved in-service experience for the masters who worked in Istanbul-Çanakkale straits, Gulf of İzmit and İzmir is 4 month in order to be a master in the lines of Bosphorus, Islands-Anatolia.

If the masters who worked in the lines of Bosphorus, Islands-Anatolia, Yalova and Gulf of İzmit want to work in the other lines, they do not need to have a special in-service experience.

The ones who have a higher competence degree than coast master competence degree can not work in Bosphorus, Islands-Anatolia lines as a master unless they have an approved trainingship experience minimum 6 months, and in the lines of Çanakkale Strait, Gulf of İzmit and İzmir, minimum 3 months with an another master.

“VALID FOR INLAND WATERWAYS” sign is written on the certifications of the Coastal Masters who will work in the inland waterways.

Chapter III

Training and certification of seafarers who work on middle voyage and ocean going ships.

Level of Competence

Article 8. Competency levels of seafarers are given below.

1. Deck Division

- a. Ratings;
 1. Deck boy
 2. Ordinary seaman
 3. Able seaman
 4. Boatswain
- b. Radio Officers;
 1. Radio officer

2. Radio electronic officer
- c. Master and Deck Officers;
 - 1.
 2. Watchkeeping officer
 3. Chief officer
 4. Master class IV
 5. Master class III
 6. Master class II
 7. Master class I
 8. Restricted watchkeeping officer
 9. Restricted chief officer
 10. Restricted master
 11. Oceangoing watchkeeping officer
 12. Oceangoing chief officer
 13. Oceangoing master

II. Engine Division

- a. Ratings;
 1. Wiper
 2. Fireman
 3. Oiler
 4. Donkeyman
- b. Chief Engineer and Engineers;
 1. Engineer officer
 2. Second engineer
 3. Chief engineer class IV
 4. Chief engineer class III
 5. Chief engineer class II
 6. Chief engineer class I
 7. Restricted engineer officer
 8. Restricted second engineer
 9. Restricted chief engineer
 10. Unlimited engineer officer
 11. Unlimited second engineer
 12. Unlimited chief engineer

III. Assistant Class

- a. Assistant Officer
- b. Other Personnel

Authority and Obligations

Article 9. Ministry of Education, Ministry of Defence and Universities, depending on Council of Higher Education under take to give effect to the provisions of the convention.

Programs that contain the mentioned training standards are approved depending on the present convention.

Societies and Foundations which are giving the Maritime training are examined by the commission established by the coordination and the chairman ship of the administration. The commission, depending on the rules of convention and IMO standards, may give some advises.

Certifications of Competence

Article 10. The certifications of competence depending on this regulation are given below.

I. Deck Division

- a. Ratings;
 1. Deck boy
 2. Ordinary seaman
 3. Able seaman
 4. Boatswain
- b. Radio Officers;
 1. Radio officer
 2. Radio electronic officer
- c. Master and Deck Officers;
 1. Watchkeeping officer
 2. Chief officer
 3. Master class IV
 4. Master class III
 5. Master class II
 6. Master class I
 7. Restricted watchkeeping officer
 8. Restricted chief officer
 9. Restricted master
 10. Oceangoing watchkeeping officer
 11. Oceangoing chief officer
 12. Oceangoing master

II. Engine Division

- a. Ratings;
 1. Wiper
 2. Fireman
 3. Oiler
 4. Donkeyman
- b. Chief Engineer and Engineers;
 1. Engineer officer
 2. Second engineer
 3. Chief engineer class IV
 4. Chief engineer class III
 5. Chief engineer class II
 6. Chief engineer class I
 7. Restricted engineer officer
 8. Restricted second engineer
 9. Restricted chief engineer
 10. Unlimited engineer officer
 11. Unlimited second engineer
 12. Unlimited chief engineer

Chapter IV

Rules Related with Age, Level of Education and Service Time

Competence Certifications of Deck Class

Article 11. Conditions of age, level of education and service time, in order to get seafarer holder for ratings, certificate of competency and seafarer holder for masters and ship officers are shown below. (In the promotion of the masters and deck officers who work on the scientific ships, gross tonnage of the ships are not evaluated)

I. Ratings

a. Deck boy; Every candidate for certification shall be graduate at least primary school and be not less than 16 years of age. Deck boy certificate is given to the candidates who attend and complete the maritime courses, that will be opened by the administration and the candidates must have the security certificates that are declared in the (1) paragraph of the Article 15 of this regulation.

b. Ordinary Seaman

1. Approved in-service experience as a deck boy for 12 months (six months must pass undertraining) in the engine trade ships.
2. After having in-service experience as a deck boy for six months, he must have the special maritime training which is accepted by the administration for two months.
3. Having approved 12 months in-service experience of his military service on active ships as a deck rating (helmsman and boatswain are not accepted) and have at least primary school diploma.
4. Ability to understand the orders related with duty and to express himself to the watch officer; ability to use the rudder, knowledge of principles of magnetic and gyro-compass; ability to report the range and bearing of lighthouses, beacons and buoys, knowledge of steering control systems, operational procedures and change over from manual to automatic control and vice versa; ability to communicate and to recognise the distress or emergency signals, adequate knowledge of the naval terminology and definitions.

Be successful in the examinations, assessments of evidence given above, done by the administration then they are given a competence certificate for a navigational watch on ships by the administration.

c. Able Seaman; Every candidate for certification shall be not less than 18 years old.

1. Approved 1 year in-service experience as an ordinary seaman in power driven trade vessel in sailing trade vessel.
2. Having approved 12 months in-service experience of his military service on active ships, and approved helmsman and boatswain training.
3. Having approved the evidence obtained of the followings with a certificate given by the master or captain of a ship.
 - using compass, charts and rudder

- having enough knowledge about look out international regulations for preventing collisions at sea
- organising abandon ship drills and knowledge of the operation of survival craft and rescue boats

A competence certificate of an able seaman. The administration may give a certificate for a navigational watch on ships, if they have a competence certificate of an able seaman.

d. Boatswain

1. Having approved 2 years in-service experience as an able seaman and have knowledge of effective deck teamwork procedures with a certificate given by the master.
2. Petty officers; graduated from petty officer deck school following their leaving the navy must have 2 years approved experience, (1 year in-service experience is a must) and deck ratings who have more than 3 years in-service experience and have knowledge of effective deck teamwork procedures with a certificate given by the captain of the ship and supply and administration class petty officers must have approved 5 years approved work experience; gain a right to have a competence certificate of a Boat Swain if they pass the examination, given by the administration.

The administration may give a certificate for a navigational watch on ships if they have a Boat Swain holder.

II. Radio Officers

Certificates of competence, arranged by the telecommunication administration are given by the administration.

III. Master and Deck Officers

A. Gained Rights

A certificate of competency issued in accordance with our national convention before entry into force of the convention shall be recognised as valid. New classifications accordance with the convention are given below. Holders of a certificate of competency must change their certificates within two years after entry into force of the convention. Otherwise, their certificate of competencies shall not be recognised as valid.

- a. **Watchkeeping Officer (For Middle Voyage).** This certificate of competency is given to the ones who has the competency of Port Captain, petty officers, graduated from petty officer deck school, navigation class or other classes, but had navigation and ship handling courses, before their leaving the navy, (with 10 years approved experience-5 years of this period must be in-service) before entry into force of the convention.
- b. **Chief Officer (For Middle Voyage).** This certificate of competency is given to the candidates who had the competency of Coastal Master, petty officers, graduated from petty officer deck school, navigation class or other classes, but had navigation and ship handling courses following their leaving the navy, 7 years in-service experience, total 12 years before entry into force of the convention.
- c. **Master Class III (For Middle Voyage).** This certificate of competency is given;
 1. Officers who has the competency of a deck-officer

2. Fourth class students of ITU Maritime Faculty, Academy of Maritime Division Deck and Naval Academy and the students leaving these schools before entry into force of the convention.
3. Petty officers graduated from petty officer deck school Navigation branch or other branches but had navigation and ship handling courses, following their leaving the navy, 10 years in-service experience (as a captain of a ship in 3 years of this period), 5 years approved experience, total 15 years, before entry into force of the convention.

Depending on this convention Masters who have this competency, may be a deck officers in the ocean-going cargo ships in every tonnage.

- d. **Master Class II (For Middle Voyage).** This certificate of competency is given to the chief officers who work at sea with this certificate of competency. Depending on this convention masters who has this competency, may be a deck officers in the ocean-going cargo ships in every tonnage.
- e. **Master Class I (For Middle Voyage).** This certificate of competency is given to the masters who work at sea with the competency of near coastal Master, graduates of ITU Maritime Faculty, Maritime Academy and Naval Academy are not given this competency. Depending on this convention, the one who has this certificate of competency may work as a Chief Officer in the ocean going voyage.
- f. **Ocean-going Watchkeeping Officer.** This certificate of competency is given to the graduates of ITU Maritime Faculty, Maritime Academy, IU Engineering Faculty, Maritime Transportation and Management Department, 1st option or Naval Academy, before entry into force of this convention.
- g. **Ocean-going Chief Officer.** This certificate of competency is given to the ocean-going watchkeeping officers with two years in-service experience and graduates of Naval Academy with 5 years in-service experience before entry into force of this convention.
- h. **Ocean-going Master.** This certificate of competency is given to the graduates of ITU Maritime Faculty, Maritime Academy and Naval Academy. In order to have this competency, Naval Academy graduates must be graduated from the Naval Academy before entry into force of this convention and must have 7 years in-service experience on deck (1 year captain of a ship) and this certificate of competency is given to the ocean-going chief officers who had two years in-service experience until the entry into force of this convention.

B. Promotion of the Competencies Given As the Equivalent of the Gained Rights

In order to promote the certificate of competency following rules to be applied.

1. He must prove that he worked at least two years in the ships which are foreseen by the competency, depending on the Article 62 of this convention and he must be successful in the examinations given by the administration.
2. Promotion of the Master Class I competency is done in accordance with this article paragraph III, subparagraph C/e-2.

C. New Competencies

New competencies and qualifications of them accordance with the convention are given below.

a. Restricted Watchkeeping Officer (For Middle Voyage).

1. Candidates who have a training in accordance with the related articles of convention that shows the level of knowledge of being a restricted watchkeeping officer.
2. Graduates of at least four yeared Maritime Lycee, department of deck and the graduates Maritime Lycee, department of deck hunting but having the lessons from the department of deck and have approved seagoing service of not less than 12 months as part of an approved training programme which includes bridge watchkeeping duties under the supervision of a qualified officer for a period of not less than six months.
3. Be a fourth class midshipman in the Naval Academy or leave from this class.
4. Petty officer graduated petty officer deck school, Navigation branch or other branches of the same school but had navigation and shiphandling courses following their leaving the navy, 10 years approved experience (5 years in-service experience in this period).
5. Secondary school graduated seafarers; approved seagoing service in the deck department of not less than 3 years in accordance with the Article 62 of this convention must be successful in the examinations given by the administration in order to have this competency.

b. Restricted Chief Officer (For Middle Voyage).

1. Approved seagoing service as a watchkeeping officer of not less than 3 years with the Restricted Watchkeeping Officer competency.
2. Petty officers graduated Petty Officer Deck school, Navigation branch or other branches of the same school but had navigation and shiphandling courses following their leaving the navy, at least 7 years in-service experience (2 years as a captain of the ship), totally 12 years approved experience.
3. Must be successful in the examinations given by the administration in order to have this competency.

c. Restricted Master (For Middle Voyage)

1. Approved seagoing service as a chief officer with a Restricted Chief Officer competency not less than 3 years in accordance with the Article 62 of this convention.
2. Petty officers graduated Petty Officer Deck school, Navigation branch or other branches of the same school but had navigation and shiphandling courses following their leaving the navy, at least 10 years in-service experience (3 years as a captain of the ship), totally 15 years.

Must be successful in the examinations given by the administration from the foreseen subjects in order to have this competency. The promotion of the owners of this competency to an Ocean-going master is done in accordance with this article, paragraph III, c/e-2.

d. Ocean-going Wacthkeeping Officer.

1. Graduates of the related academies and faculties deck departments, after entry into force of this convention.
2. Graduates of Naval Academy after their leaving the navy.
3. Graduates of at least lycee, have completed approved 1806 hours (at least two years) deck officer education and training in the approved training centres in accordance with 3/6/1946 date and 4915 numbered law about Maritime Academy, Maritime high school and Maritime

courses (foreseen by IMO Model Course, 7.03), have approved seagoing service of not less than one year as part of an approved training programme, or otherwise have approved seagoing service of not less than three years. Have performed, during the required seagoing service, bridge watchkeeping duties under the supervision of the watchkeeping officer for a period of not less than 6 months. Must be successful in the examinations given by the administration from the foreseen subjects in order to have this competency.

4. This certificate of competency is given to the students of 4 years Maritime Faculties and deck departments of the Maritime Academies which apply the 7.03, 7.01 IMO programmes together. Students at the end of the 6th semester must complete 7.03 programmes and have performed the seagoing service of not less 12 months and be successful in the examinations given by the administration.

d. Ocean-going Chief Officer.

1. Approved seagoing service with an ocean-going watchkeeping officer competency for a year and have completed approved education and training and meet the standard of competence specified in IMO Model Course 7.01 programmes.
2. Naval Academy graduates with five years seagoing service in the deck department before their leaving the Navy.
3. Students of the Maritime Faculties and 4 year Academies which were given in (4) may have this competency if they continue their trainings which meet the requirements of 7.01 IMO Model Course programmes, two more semester and graduate. After graduation they must have a seagoing service of not less than a year as an Ocean-going Watchkeeping Officer and they must be successful in the examination in order to get this competency.

e. Ocean-going Master.

1. Approved seagoing service with an ocean-going chief officer with an ocean-going chief officer competency, not less than 2 years and the graduates of Naval Academy with 7 years seagoing service in the deck department (1 year as a captain of the ship) before their leaving the navy.
2. Approved seagoing service in the international waters as a master with Master Class I and Restricted Master competencies not less than two years or approved seagoing service in the Ocean-going voyages as a Master with same competencies not less than two years and candidates have completed approved education and training and meet the standard of competence specified in IMO Model Course 7.01 programmes and convention. Must be successful in the examinations given by the administration in order to get this competency.

Competence Certifications of Engine Class

Article 12. Conditions of age, level of education, and service time in order to get seafarer holder, for ratings, certificate of competency and seafarer holder for officers are shown below.

I. Ratings

- a. **Wiper.** Every candidate for certification shall; have completed at least primary education, be not less than 16 years of age, have joined and completed the basic maritime courses, have the security certificates that are declared in this convention, part V.

b. Fireman. Every candidate for certification shall; have approved seagoing service in a steam boats of not less than 6 months as a wiper, have approved adequate knowledge of boilers, main and auxiliary machinery and associated control systems, by a certificate taken from chief engineer.

c. Oiler.

1. For certification as a n oiler, shall have not less than 6 months approved seagoing service and 6 months approved training as an oiler.
2. After serving 6 months as an oiler, have the special course for oilers for two months.
3. Have completed approved seagoing service in Navy not less than 12 months as an oiler.
4. Graduates of vocational high schools, departments of making of molds, lathe operating, levelling, metal works, machinery artist, modelling, casting, mining, metallic, work machineries, electric, electronics, iron-working, heating.
5. Appropriate terms used in machinery spaces and names of machinery and equipment, engine room watchkeeping procedures, safe working practices as related to engine-room operations, basic environmental protection procedures, use of appropriate internal communication system, Engine-room alert systems and ability to distinguish between the various alarms, with special reference to fire extinguishing gas alarms.

Must be successful in the examinations given by the administration. The administration may give certificate competency for engineering watch.

d. Donkeyman.

1. Approved in-service experience taken from the chief engineer for 3 years as an oiler (for the ones who have 2.5 years in-service experience as a wiper shall serve one year as an oiler) and approved experience to manage the engine ratings.
2. Graduates of Naval Training Center, department of engineering, one year as seagoing service, total two years on active duty or specialist anlisted men who had three years seagoing service in one of the engineering divisions.

Must be successful in the examinations given by the administration. The administration may give certificate competency for engineering watch.

II. Chief Engineers / Engineers

A. Gained Rights

A certificate of competency issued in accordance with national convention before entry into force of the convention shall be recognised as valid. New classifications accordance with the convention are given below. Owners of a certificate of competency must change their certificates within two years after entry into force of the convention. On the other hand, their certificate of competencies shall not be recognised as valid.

a. Engineer Officer (For Middle Voyage). This certificate of competency is given to the ones who has the competency of Naval Motorman, petty officers graduated from petty officer, engineering school, departments of engineering or other departments but had the

motor courses before their leaving the navy, with 10 years approved experience. 5 years of this period must be in-service, before entry into force of this convention.

- b. **Second Engineer (For Middle Voyage).** This certificate of competency is given to the candidates who had the competency of engineer and petty officers graduated from Petty Officers Engineering School, department of engineering or other departments but had the motor courses before their leaving the navy, approved at least 7 years seagoing service (2 years as a chief engineer) total 12 years, before entry into force of this convention.
- c. **Chief Engineer Class IV (For Middle Voyage).** This certificate of competency is given to the chief engineers with at least two years in-service experience as a chief engineer or 4 years in-service experience as a second engineer.
- d. **Chief Engineer Class III (For Middle Voyage).** This certificate of competency is given;
 - 1. Officers who has a certificate of competency as an Engineer Officer.
 - 2. Graduates of Petty of officer Engineering School, department of engineering or other departments, but had the motor courses before their leaving the navy, approved at least 15 years in-service experience (10 years seagoing experience, at least three years in-service experience as a chief engineer) before entry into force of the convention.

Depending on this convention Chief Engineers who have this competency may be engineer officer in the ocean-going cargo ships.

- e. **Chief Engineer Class II (For Middle Voyage).** Every candidate for certification as Chief Engineer Class II of seagoing ships powered by main propulsion machinery of 370 kW or more shall be required to work as a second engineer in the ocean-going cargo ships powered by main propulsion machinery of less than 750 kW.
- f. **Chief Engineer Class I (For Middle Voyage).** The certificate will be valid for chief engineers in the ships powered by main propulsion machinery of 370 kW power or more for whom candidates other those graduates of ITU Maritime Faculty, Naval Academy and 4 yearred Universities. Depending on this convention, the chief engineers who change their competencies with Chief Engineers Class I competency may be second engineer in the ocean-going ships.
- g. **Unlimited Engineer Officer.**
 - 1. This certificate of competency is given to the graduates of ITU Maritime Academy and to the graduates of naval academy who left the Navy before entry into force of this convention.
 - 2. Naval Architects or Naval Architects MSC, Naval Architects and Marine Engineers, Naval Architects and Marine Engineers MSC, Mechanical Engineers or Mechanical Engineers MSC, who apply for having this competency after completing their trainings foreseen by IMO Model Course 704 and being successful in the examination for Unlimited Engineer Officer beginning with entering into force of this convention until 2002.
- h. **Unlimited Second Engineer.** This competency is given to the Unlimited Engineer Officers who have sea-going service not less than two years in the ships powered by main propulsion machinery of 750 kW or more since the time this convention is valid and graduates of Naval Academy before the convention if they have 5 years seagoing service in the engine division of the ships (two years in-service experience as a chief engineer).

- i. **Unlimited Chief Engineer.** This competency is given to the second engineers who have sea-going service not less than two years with the competency of Unlimited Chief Engineer in the ships powered by main propulsion machinery of 750 kW or more OR to the graduates of ITU Maritime Faculty, Maritime Academy, Naval Academy and Mechanical Engineering departments of the universities and have the certificate of chief engineer, graduates of naval academy before this convention must have at least 7 years in-service experience. (1 year in-service experience as a chief engineer.)

B. Promotion Of The Competencies Given As The Equivalent Of The Gained Rights

In order to promote the certificate of competency following rules to be applied.

1. He must prove that he worked at least two years in the ships which are foreseen by the competency and be successful in the examinations given by the administration from the foreseen subjects.
2. Promotion of the chief engineer class I, competency is done in accordance with this article paragraph III, subparagraph c/e-2.

C. New Competencies

New competencies and qualifications of them in accordance with the convention are given below.

a. **Restricted Engineer Officer (For Middle Voyage).** Candidates who have a training in accordance with the related articles of the convention that shows the level of knowledge of being a restricted engineer officer.

1. Graduates of at least four yeared Marine Engineering departments of vocational high schools, and fourth class midshipman of Naval academy or leave from this class must have approved sea-going service not less than 6 months.
2. Petty officers graduated from Naval Petty Officer, Engineering school, department of engineering or other departments but had the motor course before their leaving the Navy, with ten years approved experience. 5 years of this period must be in-service.
3. Secondary school graduated seafarers, approved seagoing service in the engine department of not less than 3 years in accordance with the article 62 of this convention must be successful in the examinations given by the administration in order to have this competency.

b. **Restricted Second Engineer (For Middle Voyage).** This competency is given to the seafarers who have approved seagoing service as a watchkeeping officer with the restricted engineer officer competency or petty officers graduated from petty officer engineering school department of engineering, or other departments but had the motor course, before their leaving the Navy with 12 years approved experience (7 years of this period must be in-service, including 3 years as a chief engineer). If they succeed the examination, given by the administration from the foreseen subjects which the convention requires.

c. **Restricted Chief Engineer (For Middle Voyage).** This competency is given to the second engineers who have approved sea-going service as a restricted second engineer competency or petty officers graduated from petty officer engineering school department of engineering, or other departments but had the motor course in Naval training center, before their leaving the navy, with 15 years approved experience. (10 years of this period must be in-

service including 3 years as a chief engineer.) If they succeed the examination, given by the administration from the foreseen subjects which the convention requires.

d. Unlimited Engineer Officer. This competency is given to;

1. Engineering department graduates of the related academies and faculties after entry into force of this convention.
2. Graduates of Naval Academy after their leaving the Navy.
3. Graduates of at least lycee have completed approved 1986 hours (at least two years). Unlimited Engineer Officer education and training in the approved training centers (foreseen by IMO Model Course 7.04) and have approved seagoing service not less than 6 months as part of an approved training programme, or otherwise have approved seagoing service of not less than three years. If they succeed the examination, given by the administration.
4. This certificate of competency is given to the engineering department students of 4 yeared Maritime Faculties and Academies related with Maritime which apply the 7.04 IMO programmes together. Students at the end of the 6th semester, must complete 7.04 programmes and must have performed the seagoing trainings of not less than 6 months and be successful in the examinations given by the administration.

e. Unlimited Second Engineer. This competency is given to;

1. Approved seagoing service with an Unlimited Engineer Officer competency for a year and have completed approved education and training and meet the standard of competence specified in IMO Model Course 7.02 programmes.
2. Naval Academy graduates with 5 years seagoing service including 2 years service as a chief engineer in the engine department before their leaving the Navy.
3. Students of maritime faculties and 4 yeared academies which were given in (d) may have this competency if they continue their trainings which meet the requirements of 7.02 IMO Model Course programmes two more semester and after graduation they must have a seagoing service of not less than a year as an Unlimited Engineer Officer. If they succeed the examinations given by the administration.

f. Unlimited Chief Engineer. This competency is given to;

1. Approved seagoing service as a second engineer with an Unlimited Second Engineer competency for two years and graduates of naval academy who has 7 years in-service experience including 1 years in-service experience as a chief engineer, before their leaving the Navy.
2. Approved seagoing service in the international waters with the competency of Chief Engineer Class I or Restricted Chief Engineer or approved seagoing service in the ocean-going voyages as a second engineer with same competencies not less than two years and have completed approved education and training, and meet the standard of competence specified in IMO Model Course 7.02 programme and convention, if they succeed the examinations given by the administration.

Communication Class

Article 13. Training and Certification of the seafarers who are in charge of communication in the merchant ships are shown below.

A. Gained Rights

A certificate of competency issued in accordance with national convention and International regulations before entry into force of convention shall be recognised as valid.

B. New Rights

1. Radio personnel on ships required to comply with the provisions of the GMDSS are required to meet the provisions of national and international competency.
2. they will have this competency if they succeed the examinations given by the administration from the foreseen knowledge of the convention.

The Adjustment of the Radio Officers to be a Deck Officer

Article 14. If radio officers, who have 3 years in-service experience, want to be a Restricted Watchkeeping Officer, must complete the programme given below.

1. To complete the programmes which were given in the regulation about the examination subjects for seafarers, in accordance with the Article 54 of this convention.
2. On completion of the training given above, the candidate must have approved seagoing service in the deck department of not less six months which shall include at least four hours a day and bridge watchkeeping duties under the supervision of a qualified officer. This programme will be documented in a training record book or similar document.
3. Satisfy the administration by passing appropriate examination foreseen by the administration in order to be a restricted watch keeping officer.

Chapter V

Training and Certification for Maritime Safety

Article 15. Seafarers will be trained and certificated about safety at sea in accordance with the convention, as they are shown below.

- I.** Standards of training and certification for all seafarers. All seafarers shall be properly educated and trained adequately experienced. Skilled and competent to perform their duties in a manner which provides for the safety of life and property at sea and the protection of the marine environment in the courses which are given below before joining the ship.
 - a) Survival techniques.
 - b) Methods and aids for fire prevention and fire-fighting.
 - c) First aid.
 - d) Personal safety and social responsibilities.

Courses shown above are given by deck officers and engineers who worked in training centers and the Naval Combat Officers and petty officers.

- II.** Training and certification of the seafarers in accordance with their responsibilities.

a. Approved certification and training of life saving appliances and rescue boat. In order to have an ability to use life saving appliances and rescue boat, at least two seafarers among the deck officers, engineers and ratings must have the qualifications given below.

- 1) be not less than 18 years of age.
- 2) have approved sea going service of not less than one year or have completed approved training level including 6 months period of appropriate seagoing service as required by the administration.
- 3) satisfy the administration by passing appropriate examination foreseen by the administration.

b. Training and certification of operating a fast rescue boat. In order to operate a fast rescue boats, seafarers must have the qualifications give below.

- 1) To have a certificate of operating life saving appliances and rescue boats.
- 2) Having completed a course accepted by the administration.
- 3) Satisfy the administration by passing appropriate examination foreseen by the convention.

Courses shown above are given by deck officers or engineers who worked in training centers and the Naval Combat Officers and Petty Officers.

III. Training and certification of health knowledge. Deck officers who are in charge of health in ships must have a course or training including the foreseen knowledge of the convention and satisfy the administration by passing appropriate examinations.

Students who had all these safety at sea trainings given above in their school programmes are directly certificated by the administration.

Chapter VI

Training and Certification of the Personnel Working in Tankers and Ro-Ro Ships

Article 16. Training and certification of the personnel working on oil, gas and chemical tankers are shown below.

a. **Tankers.** Officers and ratings who have the qualifications give 1 and 2 below and assigned specific duties and responsibilities related to cargo or cargo equipment on tankers shall have completed and approved fire-fighting course in addition to the training required by the regulation.

- 1) At least three months of approved seagoing service on tankers in order to acquire adequate knowledge of safe operational practices.
- 2) An approved tanker familiarisation course given in section a code of the convention.
- 3) If the tanker is of less than 3000 gross tone and the duration of each voyage on which the tanker is engaged during the period does not exceed 72 hours and the operational characteristics of the tanker and the number of voyages and loading and discharging operations completed during the period, allow the same level of knowledge and experience to be acquired the period so accepted is not less than one month.

b. Masters, chief engineer officers, chief mates, second engineer officers and any person with immediate responsibility for loading, discharging and care, in addition to meeting the requirements of sub-paragraphs (a/1) and (a/2) have experience appropriate to their duties on the type of tanker on which they serve and completed an approved specialised training programme required by the convention.

c. Within 5 years after entry force of the convention for a party, seafarers may be considered to have met the requirements of a code if they have served in a relevant capacity on board the type of tanker concerned for a period of not less than one year within the preceding five years.

Administration shall ensure that an appropriate certificate is issued to seafarers who are qualified in accordance with this article as appropriate. Every seafarers who is qualified shall be duly certificated.

Training and Certification of the Personnel on Ro-Ro Passenger Ships

Article 17. Masters, officers, ratings and other personnel serving on board Ro-ro passenger ships shall have the training required by the convention below in accordance with their responsibilities.

1. Prior to being assigned shipboard duties on board ro-ro passenger ships, seafarers shall have completed the training in crowd management as specified in section A code of the convention.
2. Masters, officers and other personnel assigned specific duties and responsibilities on board ro-ro passenger ships shall have completed the familiarisation training specified in section A code of the convention.
3. Masters and officers who are in charge of the safety shall have completed the training specified in section A code of the convention.
4. Administration shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified under the provisions of this regulation.

Chapter VII

Conditions of Having a Certificate Competency and Seaman's Book

Conditions

Article 18. In order to have seaman's book and certificate of competency, each candidate shall ensure that;

1. Be a Turkish citizen or a Turkish originated foreigner that is described in the 2527 dated law which contains free working rights of the Turkish originated foreigner in free or state establishments and companies.
2. To have the qualifications of age, educational level and the seagoing service time which is required by the certificate of competency.
3. Each candidate shall have approved standards o medical fitness for seafarers, in accordance with the related articles of this convention.

4. Be not more than 1 year of imprisoned or not to be sentenced from embezzlement, peculation, malversation, bribery, larceny, swindling, forgery and breach of trust out than negligent offences and 25th article of 1918 numbered law about prevention of smuggling.
5. If the candidate is sentenced from the crimes given above, he may be given a seaman's book within two years after carrying out his sentence for once.
6. Foreigners, who are graduated from the schools which are creating an opportunity to have a certificate of competency in Turkey, are given a certificate of competency.

Seagoing Service

Article 19. The foreseen seagoing service in order to get a certificate of competency is a period of time which is passed on deck and engine divisions of ships belonging to trade, military or public institutions. Out of service period which includes port of registry, permissions, illnesses and other reasons, if they exceed two months in one year, are not valid as a seagoing service.

Fixing, evaluating and inscribing enrol in the register of the seagoing service will be determined in the related chapters. The seagoing service of the officers who are working in public institutions and private sector related with the maritime and have certificate of competency in accordance with the regulation, is two months 13 days in a year. These services are not evaluated as a criteria for a promotion but obtain the continuation of the competencies. (1 service within 5 years). In order to be promoted, one should satisfy the administration by passing appropriate examination.

On the other hand, the seagoing service of the seafarers who worked on ships working in harbour voyage, lakes and inland waters before entry into force of convention without having consideration of the gross tonnage, or engine power of these ships are evaluated to have 6 months sea-going service. These services are evaluated as a criteria for promotion only once.

Cancellation of the Certificate of Competencies

Article 20. If a seafarer loses one of one of the conditions written in the 18th Article of the convention, after their registration to the main book of Turkish seamen, their seaman books and certificates of competency are taken back and this situation is registered to the main book.

If any seafarer abandon the ship without having permission or reason, when they are in abroad act of transacting, in accordance with the 1469, 1470, and 1471 articles of the 6762 numbered Turkish Commercial Code, is done.

Chapter VIII

Rules of Medical Fitness

Medical Examination

Article 21. Medical examinations of the candidates who apply to get seaman book and certificate of the competency for the first time, is done in the hospitals that have medical board.

Medical examinations is repeated in every two years. But these repeated medical examinations are done by the doctors given by competency by the administration in accordance with the 25, 26, 27 articles of this convention related with the rules of seeing and hearing competency.

Harbour masters any time may send the suspected or unformed seafarers to a medical examination, in order to determine the fitness for sea service.

The Obstacle Defects and Sickness to Serve at Sea

Article 22. Service at sea permission is not given to the seafarers who have the sickness written below.

- a. mental diseases and drug addicted.
- b. nevralgias (epilepsy, parkinson, etc.)
- c. loss of five-sense organs (deafness, blindness, and etc.)
- d. obstacle to work.
 - i. metabolism and endocrine diseases. (diabetes, malliton, amiloidosis and etc.)
 - ii. blood diseases (maligu or destruction of the blood construction, etc.)
 - iii. heart diseases
 - iv. skeleton of blood diseases (romotoit, artrit, malign diseases)
 - v. infectious diseases (AIDS, syphilis, typhoid, etc.)

Seafarers who have approved medical report determined above shall not work at sea.

Results of Medical Examinations

Article 23. A permission to work at sea shall not be given for seafarers who have been determined that have one of the diseases given above as a result of medical examinations.

Seafarers who have approved medical report about their recovery shall be given a permission to work at sea. The certificate of competency and seaman's books shall be taken back if they are not recovered.

A bill of exception about the results of the medical examination can be given to a port-master. In case of this, the related person can be consigned to one another medical board. If the medical reports of the two hospitals are different, the related person can be consigned to a specialised hospital by the local health institute. The medical report taken from specialised hospital is certain.

Medical Report for the Sefarers Less Than 18 Years of Age

Article 24. In the medical reports of the seafarers, less than 18 years of age, their health and physical condition related with their competency for seagoing service must be shown briefly.

Rules Related With Visual Power

Article 25. Deck officers and engineer officers while getting their first certificate of competency, in the condition of having on-healthy eye, the other may be half sighted.

One with 8/10 or more visual power or one who can cease his visual failure with an engineering even if the other eye is blind.

In the continuation of the competency, seafarers can be given a permission to work at sea if they cease their visual failure with an eye-glasses.

Color-Blindness

Article 26. Any seafarers if they have color-blindness or night-blindness can not be a master, deck-rating.

Rules Related With Hearing Power

Article 27. Deck service is not given to the one who can not hear a whisper from the distance of 2.5 m with one ear and 1.5 m with another ear. Engine service is not given to the one who can not hear a whisper from the distance of 2m with one ear and 1m with another ear. However, in the continuation of the competency, seafarers can be given a permission to work at sea if they cease their hearing failure with hearing-devices.

Chapter IX

Examination Centers For Seafarers

Duty

Article 28. The examinations of seafarers are done by Board of ECS (Board of Examination Centers for Seafarers) which established by the administration in accordance with the rules mentioned in Section Code-A of the convention. Board of ECS (Board of Examination Centers for Seafarers) does all the procedures related with the examinations of seafarers on behalf of the Administration.

Structure

Article 29.

1. Board of ECS
2. President of ESC
3. Unit of Preparing Questions
4. Examination Commissions
5. Unit of publication
6. Unit of procedure

Board of ECS and Their Duties

Article 30. Board of ECS consisted of the people chosen and informed to the administration by their own institutions in accordance with the number foreseen by the administration. The institutions are: ministry of education, Ministry of Defence (Commandingship of Naval Forces) Faculties or their departments and Academies.

Duties

1. To do the job of Considering and Inspection
2. To determine the candidates of presidency of ECS

President of ECS and Duties

Article 31. ECS president is chosen for 3 years among three candidates determined by the Administration.

Duties

1. Administer of ECS.
2. Carrying out the continuation of preparing Questions.
3. Carrying out the establishment of commissions.
4. Carrying out the regulation of Examinations for seafarers in accordance with this regulation.
5. Carrying out the continuation of publications.
6. Carrying out the coordination and controlling of all the procedures of Examinations for seafarers.

Unit of Preparing Questions

Article 32. Unit of preparing Questions for examinations of seafarers consists of sub-units which are given a duty of preparing Questions from each subjects, mentioned in the Regulation of examination subjects. These sub-units are chosen from the teachers of maritime Education centers and experts when they are necessary.

The duty of this unit is to prepare Questions by way of sub-units in accordance with the subjects mentioned in the related regulation.

Examination Commissions

Article 33. The examination commissions consist of the teachers, who are given a duty from each subjects, mentioned in the regulation, from ministry of education, ministry of defence (Commandingship of Naval Forces), Faculties and their departments, academies, or institutions chosen by the administration. This commission is formed by the president of ECS.

Their duty is to determine the Questions, to be Watchman in the written and oral examinations, to evaluate the written papers and to carry out the oral or/applied examinations.

A lot of watchman are given a duty to inspect if the examinations are done in Accordance with the regulation or not, by the administration.

Unit of Publication

Article 34. The unit of publications is ruled by president of ECS. Their duty is to print the sample Question books, guide books, Question books, and all kinds of publications related with examination for seafarers.

Chapter X

Examination Centers , Dates and Announce

Centers and Dates

Article 35. Deck/Engineering class officers and masters examinations are carried out in the centers planned by ECS, in February and September months of every year regularly, or these exams are carried out in the centers and in the periods that are chosen by the administration.

Ratings and Boatswain/donkey man examinations are carried out in every 3 months by the administration in the Regional Head offices.

Ratings and Boatswain/donkey man examinations are carried out by a commission that is formed by master, chief officer, chief Engineer or second engineer of a ship of 500 grosstonage or more located in the Regional center. In each commission, a president is chosen from the Regional Head office , Board of ship survey, Deck/Engine experts.

Amateur seafarer examinations are carried out by the administration every month regularly in the chosen harbours and in the chosen time.

Amateur seafarer examinations are done by three commissions, under the presidency of Regional Head Office or Board of Ship Survey Expert and deck and Engineering experts.

Announcement Of The Examinations

Article 36. The announcement related with Deck Class Officers, Engineering Class Officers, Captain of Yacht is announced two months before the examinations by the Guide book of the examinations for seafarers which is printed by the ECS by way of Regional Head offices and Port Masters.

Ratings and boatswain /donkey man examinations are announced 1 month before the examinations by the Regional Head Offices.

Chapter XI

Application Procedures For The Seafarers Examinations

Application Procedures for Amateur Seafarer Examinations

Article 37. Seagoing service is not required in order to apply for the examination in order to give an Amateur seafarer exam,

- a. Be completed 18 years of age
- b. Be graduate of at last primary school
- c. A petition joint with (**APPENDIX-2**)

1. Approved copy of identity card (Approved by notary public)
2. Approved copy of Diploma (Approved by notary public)
3. A medical report taken from board of health.
4. Four ration pictures.

Applications satisfy the port-mastership are sent to the regional head offices that the port-mastership belongs to.

Application procedures for the ratings and boatswain/donkey man, master of yacht, deck/engineering officers, masters and chief engineers examinations.

Article 38. Application procedures for the examinations are given below.

a. In order to have on rating, boatswain and donkey man examinations, one should apply to the port-mastership with a petition joint with (**APPENDIX 3**)

1. Certificates of service
2. Seaman book
3. Form of information (**APPENDIX-4**)
4. 4 ration-photos
5. Approved copy of diploma (from notary-public)
6. Approved copy of identity card (from notary-public)

b. Application procedures for the master of yacht, deck/engineering officers, master and chief engineers.

In order to have master of yacht, deck/engineering officers, masters and chief engineers examinations, one should apply to the port mastership with a petition joint with (**APPENDIX-3**).

1. Certificates of service
2. Seaman's book (not necessary for the master of yacht)
3. Form of information (**APPENDIX-4**)
4. 8 ration photos
5. 2 approved copies of diploma (from notary-public)
6. 2 approved copies of identity card (from notary-public)

Applications satisfy the port mastership are sent to the regional head office that the port-mastership belongs to. Regional head offices prepare and send the lists of the candidates ten days before the exam to a ECS.

ECS prepares pictured seafarers examinations identity certificates by using the identification forms prepared by regional head offices and distributes before the examination (**APPENDIX-5**).

Chapter XII

Rules of Seafarers Examinations.

Questions of Seafarers Examinations

Article 39. Questions are prepared by sub units of preparing question in accordance with the 32 nd article of this convention. The questions are prepared depending on each competency level of seafarers from the subjects in accordance with the regulation and the foreseen type of examination.

a. Oral and/or applied examination questions.
b. Written exam questions are prepared from these groups in accordance with the Article 32 of this convention by sub units of preparing questions.

1. Multiple choice
2. Fill in the blanks
3. True-false
4. Matching
5. Compared
6. Combining
7. Essay

Sub-divisions of examination for seafarer's question, foreseen answering period and marking of each questions are advised by sub units of preparing questions and determined by the examination commission depending on the given advises, appropriation and difficulty level of the questions.

Examination

Article 40. Written/oral or applied examination for each level of competency are planned and done by ECS in accordance with "the regulation of subject implicits for seafarers examination".

Choosing The Questions For The Examination For Seafarers (EFS)

Article 41. The hardness level of written/oral or applied questions are determined by examination commission in ECS in accordance with "the regulation of subject implicits for seafarers".

Examination commissions choose the questions of written examinations which are prepared by sub-units of preparing questions by way of computers or at random. The chosen questions must cover the whole units and must keep the balance between the hardness level.

The oral and/or applied questions, which are prepared by sub-units of preparing questions are chosen by ECS before by way of at random or directly by the candidate.

Time

Article 42. After the selection of the written, oral and/or applied questions the estimated answering time for each question are added to each other one by one. Commissions determine the estimated time for each subject separately.

Mark Values

Article 43. The mark values of the written/oral and/or applied questions are determined in accordance with the mark values that are fixed before and for the examination of every subject. The total value is 100.

Printing-Delivering And Security Of The Questions

Article 44. The security of the examinations, done by ECS in main harbours or in the places fixed by the administration are under the responsibility of ECS.

Tools of EFS (Examination for Seafarers)

Article 45. The papers, books, maps and various tools that are used in the examination are obtained by ECS and put in examination centers. Using the tools belonging to the seafarers are under the permission of the commission.

Collecting of the EFS Documents

Article 46. EFS answered papers and other documents, just after the examination is over, are collected and delivered to the examination center that are under the responsibility of ECS. In accordance with the safety rules.

Evaluation of EFS

Article 47. The evaluation of the written examinations are done by the EFS commission in accordance with the examination papers. The evaluation of the oral or/and applied examinations are done in the examination place by the EFS commission immediately.

Accomplishment Mark of EFS

Article 48. The accomplishment mark for each level of competency for seafarers are given for each subject separately (total mark will be 100) in accordance with the "regulation for exam topics".

Minimum Accomplishment Mark of EFS

Article 49. In order to be successful, one must take 50 or more. In order to be considered as successful from the examinations for seafarers, one should be successful from all the subjects that were given in the convention of the seafarers examination subject contexts.

If one can not be successful from one section of the subject in the period of EFS, it should be repeated in the following periods of EFS.

Announcement of the EFS Results

Article 50. The results of the EFS are announced by the chairman of Harbour and related harbour administrations of ECS at the same time, and in 15 days after the last examination date, by regulating the form of EFS results (**APPENDIX-6**).

Objection to the EFS Results

Article 51. Objections to the EFS results are done within fifteen days after the announcement of the EFS results, directly to ECS by writing a bill of exception. The applications that overpass the given time period are not evaluated.

The objections are evaluated by a commission consists of 3 members who are expert in those fields and not the member of commission of EFS examinations. The members of the objection commission are chosen by the president of ECS. The objections are evaluated and announced to whom it may concerned within 15 days after the last day for objections.

Certificate of Success

Article 52. Two certificates of success with a photo for the candidates who are successful from all the exams that were mentioned in the convention of the seafarers examination subject context are prepared by ECS and sent to the chairman of harbour (**APPENDIX-7**).

EFS Official Register Book

Article 53. EFS results that are done by BECS are recorded to an EFS official register book by opening different sections for each examination periods in accordance with the rules given below.

In each section, the place of examinations and dates must be shown. Each subject must be written in their own sections. The situations of the examiners must also be shown (**APPENDIX-8**).

Chapter XIII

Examination Subjects

EFS Subjects

Article 54. EFS subjects in accordance with the level of competency are shown below. The context of the subjects are fixed by a regulation depending on this convention.

- I. Amateur Seafarer
 - a. Navigation.
 - b. Regulations for preventing collisions at sea.
 - c. Vessel handling.

- d. Communication at sea.
- e. Sea faring.
- f. Maritime law.
- g. Meteorology.
- h. Safety at sea.
- i. Knowledge of Engine.

II. Boatswain

- a. Navigation.
- b. Seafaring.

III. Yacht Master

- a. Navigation.
- b. Regulations for preventing collisions at sea.
- c. Ship handling.
- d. Communication at sea.
- e. Seafaring.
- f. Maritime law.
- g. Meteorology.
- h. Safety at sea.
- i. Knowledge of engine.
- j. Nautical English.

IV. Port Captain

- a. Navigation.
- b. Seafaring.
- c. Safety at sea.

V. Coastal Master

- a. Navigation.
- b. Seafaring.
- c. Communication at sea.
- d. Cargo handling and stowage.
- e. Maritime law.
- f. Meteorology.
- g. Safety at sea.

VI. Watch-keeping Officer (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Structure and stability of the ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

VII. Chief Officer (For Middle Voyage)

- a. Navigation
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

VIII. Master Class IV (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

IX. Master Class III (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

X. Master Class II (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

XI. Master Class I (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.

- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.
- j. Ship engines.
- k. Maritime Law.

XII. Examination Subject of Radio Officers (For Middle Voyage)

- a. Navigation (140 hours)
- b. Watch-keeping (100 hours)
- c. Ship handling (28 hours)
- d. Construction and stability of ship (56 hours)
- e. Cargo handling and stowage (56 hours)
- f. Safety at sea (100 hours)

XIII. Restricted Watch-keeping Officer (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

XIV. Restricted First Engineer (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.

XV. Restricted Master (For Middle Voyage)

- a. Navigation.
- b. Watch-keeping.
- c. Ship handling.
- d. Communication at sea.
- e. Construction and stability of ship.
- f. Cargo handling and stowage.
- g. Meteorology.
- h. Safety at sea.
- i. Nautical English.
- j. Ship engines.

- k. Maritime law.
- XVI. Oceangoing Watch-keeping Officer
- a. Navigation.
 - b. Watch-keeping.
 - c. Ship handling.
 - d. Communication at sea.
 - e. Construction and stability of ship.
 - f. Cargo handling and stowage.
 - g. Meteorology.
 - h. Safety at sea.
 - i. Nautical English.
- XVII. Oceangoing Chief Officer
- a. Navigation.
 - b. Watch-keeping.
 - c. Ship handling.
 - d. Communication at sea.
 - e. Construction and stability of ship.
 - f. Cargo handling and stowage.
 - g. Meteorology.
 - h. Safety at sea.
 - i. Nautical English.
- XVIII. Oceangoing Master
- a. Navigation.
 - b. Watch-keeping.
 - c. Ship handling.
 - d. Communication at sea.
 - e. Construction and stability of ship.
 - f. Meteorology.
 - g. Safety at sea.
 - h. Nautical English.
 - i. Ship Machinery.
 - j. Maritime law.
- XIX. Donkey Man
- a. Knowledge of machinery.
 - b. Knowledge of electricity.
 - c. Knowledge of profession.
- XX. Marine Motor Technician
- a. Diesel engines and operation.
 - b. Knowledge of electricity.
- XXI. Marine Mechanic Technician
- a. Diesel engines and operation.
 - b. Marine auxiliary engineering and systems.
 - c. Information of electricity.

- XXII. Engineer Officer (For Middle Voyage)
- a. Marine engineering operation and maintenance.
 - b. Knowledge of electricity.
 - c. Technical drawings.
 - d. Nautical Chemistry
- XXIII. Second Engineer (For Middle Voyage)
- a. Marine engineering operation and maintenance.
 - b. Marine auxiliary engineering and system.
 - c. Knowledge of electricity.
 - d. Technical drawings.
 - e. Steam and feeding water systems.
 - f. Nautical Chemistry.
- XXIV. Chief Engineer Class IV (For Middle Voyage)
- a. Marine engineering operation and maintenance.
 - b. Marine auxiliary engineering and system.
 - c. Knowledge of electricity.
 - d. Technical drawings.
 - e. Steam and feeding water systems.
 - f. Nautical Chemistry.
- XXV. Chief Engineer Class III (For Middle Voyage)
- a. Marine engineering operation and maintenance.
 - b. Marine auxiliary engineering and system.
 - c. Knowledge of electricity.
 - d. Technical drawings.
 - e. Steam and feeding water systems.
 - f. Nautical Chemistry.
- XXVI. Chief Engineer Class II (For Middle Voyage)
- a. Marine engineering operation and maintenance.
 - b. Marine auxiliary engineering and system.
 - c. Knowledge of electricity.
 - d. Technical drawings.
 - e. Steam and feeding water systems.
 - f. Nautical Chemistry.
- XXVII. Chief Engineer Class I (For Middle Voyage)
- a. Marine engineering operation and maintenance.
 - b. Marine auxiliary engineering and system.
 - c. Knowledge of electricity.
 - d. Technical drawings.
 - e. Steam and feeding water systems.
 - f. Nautical Chemistry.
- XXVIII. Restricted Engineer Officer (For Middle Voyage)
- a. Diesel engine instigating systems.

- b. Marine electrotechnology.
- c. Ship building.
- d. Nautical chemistry.
- e. Steam boilers.
- f. Steam turbines.
- g. Technical drawings.
- h. Thermodynamics.

XXIX. Restricted Second Engineer (For Middle Voyage)

- a. Diesel engine instigating systems.
- b. Marine electrotechnology.
- c. Ship building.
- d. Nautical chemistry.
- e. Steam boilers.
- f. Steam turbines.
- g. Technical drawings.
- h. Thermodynamics.

XXX. Restricted Chief Engineer (For Middle Voyage)

- a. Diesel engine instigating systems.
- b. Marine electrotechnology.
- c. Ship building.
- d. Nautical chemistry.
- e. Steam boilers.
- f. Steam turbines.
- g. Technical drawings.
- h. Thermodynamics.

XXXI. Unlimited Engineer Officer

- a. Operation and maintenance of diesel engines.
- b. Steam boilers.
- c. Steam and feeding water systems.
- d. Steam turbines.
- e. Nautical chemistry.
- f. Marine electrotechnology.
- g. Technical drawings.
- h. Marine auxiliary engineering and systems.
- i. Safety at sea.

XXXII. Unlimited Second Engineer

- a. Operation and maintenance of diesel engines.
- b. Steam boilers.
- c. Steam and feeding water systems.
- d. Steam turbines.
- e. Marine electrotechnology.
- f. Ship building.
- g. Marine auxiliary engineering and systems.
- h. Safety at sea.
- i. Thermodynamics.

j. Automatic-control.

XXXIII. Unlimited Chief Engineer

- a. Operation and maintenance of diesel engines.
- b. Steam boilers.
- c. Steam and feeding water systems.
- d. Steam turbines.
- e. Marine electrotechnology.
- f. Ship building.
- g. Marine auxiliary engineering and systems.
- h. Safety at sea.
- i. Thermodynamics.
- j. Automatic-control.

Chapter XIV

Standards Regarding Watch-keeping

Fitness for Watch-keeping

Article 55. Maritime institutions shall for the purpose of preventing fatigue, establish and enforce periods for watch-keeping personnel and require that watch systems are so arranged that the efficiency of all watch-keeping personnel is not impaired by fatigue and the duties are so organised that the first watch at the commencement of a voyage and subsequent relieving watches are sufficiently rested and otherwise fit for duty.

This system will be suitable to the principles given below.

- a. All persons who are assigned duty of a watch shall be provided a minimum 10 hours of rest in any 24 hours period.
- b. The hours of rest may be divided into no more than two periods, one of which shall be at least 6 hours in length.
- c. The requirements for rest periods laid down in paragraphs (a) and (b) need to be maintained in the case of an emergency or drill or in other overriding operational conditions.
- d. Notwithstanding the provisions of paragraph (a) and (b), the minimum period of ten hours may be reduced to not less than 6 consecutive hours provided that any such reduction shall not extend beyond to days and not less than 70 hours of rest are provided each seven-day period. (d) Administrations shall require that watch schedules where they are easily accessible.

Watch-keeping Principles

Article 56. The officers in charge of navigational or deck watch and the officers in charge of the engineering watch shall be duly qualified in accordance with the provisions of code-A appropriate to the duties related to navigational or deck watch/engineering watch-keeping.

Watch-keeping principles are given below.

- a. Voyage planning.
- b. Watch-keeping principles.
- c. Look-out.
- d. Taking over the watch principles.
- e. Restricted visibility.
- f. Navigation with pilot.
- g. Ship at anchor.
- h. Principles to be observed in keeping an engineering watch.
- i. Principles to be observed in keeping a radio watch.
- j. Principles to be observed in keeping a watch in port.

Chapter XV

Turkish Maritime Registration Log

Registration Offices

Article 57. Registration offices are these

- a. The registration logs and records of seafarers are kept by directorates of district and chairmanship of port. There is no need to keep the registration logs and records by the chairmanship of port, for the harbours that are located in the directorate of district.
- b. Certificate of competency and records belong to the officers are kept by chamber of shipping.
- c. The registration logs and records of seafarers are kept by directorates of district for the harbours that are belonged to that district separately. Seafarers book for each port, record numbers follow an order in the log-book.
- d. A change in the registration logs and records that are kept by Chairmanship of port will be declared to directorate of district to be registered to a log, also promotion, decay, death, cancellation, giving up from service etc. that are written to the logs in the directorate of districts must be declared to the registration and record ports that the seafarer belongs to.

Registration Process

Article 58. The regulations that must be followed in registration process

- a. Seafarers chooses the port as a registration and record port where he dwells. If there is no port where he dwells, he may apply to other ports. The candidate who wants to be a seafarer may apply by stating; the level of competency he requires, not having any seafarers book from any ports. The documents given below must be added to his application form. The certificates, that need to be approved are approved by master of harbour or authorised personnel by evaluating if the document is original or not. Foreign origin documents of their copies must be translated and approved by Notary public. Domestic origin documents are out of this process.
 - 1. Copy of identification certificate or the original.
 - 2. Copy of graduation certificate or the original. Diplomas must be photographed.
 - 3. Document of residence
 - 4. 8 documentary photographs.

Candidates who apply for the competency of being a steward or cook will also add letter of recommendation to the documents given above.

b. Candidates who apply to be a seafarer are sent to;

1. A chief of police; in order to be investigated what job he is doing.
2. A public prosecutor, in order to check his record of convictions.
3. A state hospital that has a board of health, in order to evaluate if he is sufficient enough to work at sea (Candidates who wants to be a captain of yacht and amateur sailor may have a report from the private hospitals.)
4. A recruiting office, in order to understand if their any obstacle to go abroad or not by the chairmanship of port.

Chairman of port, sends the candidate to a Basic Maritime Course, if he is convinced that the seafarer wants to work at sea, depending on the results of the inquires and he sends the files of the seafarers who are successful to the directorates of district by having the Turkish Maritime Log Registration Charge.

Directorates of district sends the seaman's book of the candidates who are completed the basic maritime training course or having a diploma or certificate of military service and sealing to a chairmanship of port in order to be given to a claimant.

And the chairmanship of port by doing the same registrations on the record-book, and having the signature and the finger-print of the seafarer on the seaman's book and log-book the seaman's book to owner.

Keeping the Registration Log and Record Files

Article 59. Registration Log and record files

- a. Pages of the log-book must be numbered and sealed by the directorates of district. How many pages does the log-book have must be written and sealed by the directorates of district on thinner side if the cover page of the look book.
- b. Documentary photograph is sticked in the first registration to a photograph-section of the log book, but by evaluating the physical changes, the photograph is repeated in every five years; while changing seaman's book.
- c. The Identification Certificate section of the log-book is filled depending on the knowledges of the Identification Certificate. Number of the Identification Certificate, there is no need to rewrite these knowledges. Only Name-Surname, Father's name, Mother's name, Place of Birth, Date of Birth, City, County, Number of Identification Certificate are written.
- d. To the level of Education section of the log-book, the seafarer's last diploma, date and number and the school's name are written.

- e. To the level of competency section of the log-book, in the first registration, competency level of the seafarer, seaman's book or the date and the number of the certificate is written. The promotion of the seafarers are also shown in this section.

In addition to them, the seaman's book date and number and the date and the number of the certificate of competency of the officers are registered in this section.

- f. The military statue section of the log-book is filled depending on the knowledge obtained from the identification certificate or the military documents.
- g. Seafarers maritime courses depending on the rules of the convention are written in the related sections of the log-book.
- h. Record of convictions that are taken from the public prosecutor , and results of the medical check-ups rewritten in the PRIVATE section of the log-book.
- i. The date and the numbers of the registration charges that are paid for the seaman's -book of certificate competency are recorded in the private sections of the Turkish Maritime-log-book and trade-ship officers record-book.
- j. If the computer is used the keep the records there is no need to keep the log-book; but Registration form that covers all the information are kept in file. (App.9)
- k. On the cover page of the seafarer's record-file, name-surname of the seafarer, order number, taken from the log-book and Registration and Record port is written in capital letters and a photo is stucked on the right top of the file.
- l. Seaman's book and certificate of the competency is only given to the owner or subagent of him approved by notary-public.
- m. After having the registration charge, "Turkish-English" written photographed Seaman's book is regulated by directorates of district.
- n. "Turkish-English" written photographed "Officer Competency" certificate is regulated by the chamber of shipping for the seafarer's in the officer class. (Apv.10)
- o. Seafarer who wins the exam to promote, may serve on the ship with his old competency-level until the new certificate of competency is given. When the new certificate of competency is given, the old one is taken back and sent to the maritime councilorship.

Procedures Related With Those Who Left The Military-Service

Article 60. The procedures related with those who left the military-service are given below.

- a. The registration procedures for those who completed their military service on the ships of the Naval Forces with "Enlisted-Service documents" given by the captain of the ships", are done in accordance with the related articles of this convention if they apply to the chairmanship of port. Retired or resigned deck/engine officers or petty officers who will get the certificate of competency without having an examination in accordance with the

regulation, apply to the chairmanship of port with the documents that are required in Article 58 of this convention with a photographed formal written request containing.

1. Certificate of service.
2. Graduation diploma of Naval Academy.
3. If they have, letter of recommendation or course certificates.

Lessons and subjects that they didn't have but necessary for the competency that they required in accordance with the related articles of this convention are given in courses to them by chief of Navy and the approved documents are shown to the administration when they are necessary. The title of the documents shall be "T.R. Chief of Navy-Course Certificate" and in the course documents, the name of the competency will be determined.

- b. Service passed in the Navy is evaluated in the first certificate of competency, in the following promotions they are not valid.

Seafarer's Procedures (Examined)

Article 61. Examined Seafarers Procedures.

- a. Those who had an examination to have a certificate of competency, if they are successful in the examinations that are given by the administration, may apply to the chairmanship of port by way of directorates of district by proving that they are successful in the exams, their application forms are sent to the administration. Arranged certificates of competency are given to the related people in accordance with Article 59 of this convention.
- b. To the engine and deck division students of related schools that their teaching programmes are approved by administration, may be given a seaman's book, with the competency of deck or engine assistant watch keeping officer if they demand.

If the assistant officers who has a seaman's book in accordance with the regulations shown above, work on board; ships that have assistant engineer officer may reduce one of the engine ratings, ships that have assistant deck officers may reduce one of the deck-ratings. (Except boatswain and donkeyman)

Evaluation of The Sea-Service

Article 62. Regulations related with the evaluation of the sea-service.

- a. "Schedule of sea-service" is prepared by the chairmanship of port.
- b. If seafarer's sea-service who applied to a chairmanship of port for promotion, is passed in the ships that sail in Turkish ports, name of the ship or ships, his level of competency, working period and sailing ports are made known. If these knowledges are related with the ships that sail only from the main port, chairmanship of port compares the lists of the seafarers that are recorder. If they are related with the ships that sail from the other ports. he asks the sea-service period of the seafarer from that chairmanship of port. In the evaluation of the sea-service period entrance-exit records that are written in the seaman's book are taken in to consideration. (If it is necessary)

- c. In the evaluation of the sea-service period of the seafarers who are working on the ships belonging to the official authorities working in port, the service documents prepared by the records of official authority and the master of the ship are taken into consideration.
- d. In the evaluation of the sea-service period of the seafarers who are working on the other ships workings in port, the service documents prepared by the master of the ship and confirmed by ship owner must be approved by the chairmanship of port.
- e. Seafarers, working on fishing-vessels that are out the borders regulated in accordance with the regulations and conventions, in order to promote must be shown in the voyage-documents not less than 1 month time, at least four times in a year.
- f. In the evaluation of the sea-service period of the seafarer who works as a captain in his own vessel, the port-records must be taken into consideration and it must be prepared by the chairmanship of port.
- g. In the evaluation of the sea-service period of the seafarers who are working on the Turkish ships sailing between the outer-ports, service documents prepared by the master of the ship and confirmed by ship owner are taken into consideration if he has approved documents such as endorsement made on the seaman's book, work agreement, social insurance.
- h. In the evaluation of the sea-service period of the seafarers who are working on the foreign flagged ships, service-documents prepared by the master of the ship/ship owner and the official authorities of that country or documents showing the sea-service period approved by out consulates are taken into consideration. The English translations approved by notary public must also be shown.

Those Who Withdraws of A Service, Die or Loosing Their Certificates

Article 63. Procedures related with those who withdraws of a service, die or loosing their certificates.

- a. Those who withdraws of a service as a seafarer shall inform their wishes to one of the chairmanship if port with a written request. The chairmanship of port sends this written request and seaman's book and certificate of competency to a directorates of district that the seafarer's records are kept.

The directorates of district after recording the withdrawal to a log keeps the seaman's book in the record-file. If there is a certificate of competency, this certificate is sent to a Maritime Councilorship for destruction.

- b. The seaman's book and certificates of competency of dead seafarers are sent to the closest chairmanship of port by the master of ship, ship owner or his family. The chairmanship of port sends these documents to the directorates of district that the seafarer is registered. Seaman's book is destructed by the directorates of district, certificate of competency is destructed by the Maritime Councilorship and put in his record files.

c. Those who lose their certificate of competency or seaman's book must declare the situation by way of newspapers including the date and number of the seaman's book or certificate of competency. Three copies of the newspaper with a written request are given to none of the chairmanship of port. (In the ports that has the directorates of district, two copies of the newspaper are given.)

1. Chairmanship of port have chief of police and public. Prosecutor inquisitions done of the seafarers who lost their seaman's book and the medical check-up time have not completed. If the medical check-up time is completed, they have their medical check-up done. Chairmanship of port, in order to regulate a new seaman's book, need inquisitions that are done by public prosecutor and chief of police, medical report, photograph and copy of identification certificate and two copies of newspaper, written request. These documents are sent to the directorates of district that the seafarer's records are kept.

Seaman's book which is reprepared by the directorates of district is sent to the chairmanship of port in order to be given to the owner. Chairmanship of port after having the registration charge, gives the seaman's book to the owner. The date and he number of the registration charge is sent to the directorates of district in order to be kept in his record-file.

If the seaman's book or certificate of competency is too old to be used, the procedures that are mentioned in this article are applied. (Except the inquisitions done by public prosecutor or chief of police)

2. The procedure that are pointed out in paragraph (a) is applied for those who lost their certificate of competency and a file that is sent to directorates of district by chairmanship of port is sent to maritime councilorship by way of directorates of district maritime councilorship, having completed the investigations on the file, decides if it is suitable for the regulation or not. New certificate of competency is prepared and sent to a directorate of district if it is suitable and directorate of district sends the certificate of competency to a chairmanship of port in order to be given to the application owner.

Chapter XVI

Various and last provisions

Continuation of Competencies

Article 64. Those who have the suitable competencies that is required by this convention, will prove that he has the qualifications given below to the administration in every 5 years.

- a. To work as a master, chief engineer officer or an officer at least 1 year in the last 5 years.
- b. To pass the examination which is approved by the administration.
- c. To complete the course or courses that are approved by the administration.
- d. To have the qualifications that are mentioned in the Article 19, 2nd paragraph of this convention.

Certificates of Competency that are taken from the foreign countries.

Article 65. To determine, which certificate of competency that are taken from the foreign countries is equal to the level of competency that are mentioned in this convention, is the duty of administration.

Those who had the navigation training in the foreign countries without having any certificate may be given a seaman's book and certificate of competency that are foreseen in the regulation. But first the equality of their education must be accepted by the Board of Higher Education or Ministry of National Education. Then the candidate must be successful in the examination.

Special Provisions For The Personnel Who Departed From The Navy

Article 66. Special provisions for the navy personnel are shown below.

- a. Those officers and petty officers who were dismissed from the navy because of deserting or getting married with the citizen of a foreign country may have the seaman's book or certificate of competency one level below from the level of, competency that are shown in their service documents. Those who were dismissed from the navy because of insufficiency of profession, expelling with a court decision are not included in this group.
- b. Petty officer sourced officers are certificated in accordance with the provisions related with the training schools that they were graduated.

Transitional provision Article 1. All kinds of maritime schools will regulate their teaching programmes within two years after entry into force of the convention in accordance with IMO Rules and give to the administration. These institutions shall obtain what they need in accordance with the regulations of the convention till 2002 and give to the administration.

But in this period, an intensive training programmes will be applied on the students who are having their education in those training institutions and by this way their deficiency will be completed.

Transitional Provision

Article 2.

(Amendment : 22951 - 1/4/1997)

Ships are manned in compliance with the seafarers in accordance with the Article 1 of this convention beginning with the entry into force of the convention. However, seafarer minimum security documents that are given in accordance with the seafarer regulation which is published and stated of being in force in 18/4/1992 date and 21203 numbered official gazette are valid till 1/8/1997.

Conventions That Are Not Valid

Article 67. Seafarer regulation which is published and stated of being in force in 18/4/1992 date and 21203 numbered official gazette and Turkish seafarers log and seafarers examination

regulation annexes and amendments which is published in 1/12/1978 date and 16476 numbered official gazette are not valid.

Entry in Force

Article 68. This regulation entries into force in 1/2/1997.

Execution

Article 69. The regulations of this convention is executed by the minister related with maritime councilorship.

APPENDIX - 1

APPENDIX - 2

.....Harbour Presidency

In order to have “ Amateur Seafarer “ competency certificate , I would like to enter to “ Amateur Seafarer Competency Examination.”

I am adding the additional documents that is given below. With my best regards

.....

Name - Surname
Signature

ADDRESS :

TELEPHONE :

DOCUMENTS :

1. Approved Birth Certificate
2. Approved Diploma
3. Photographs (4 pieces, 4.5 X 6)

APPENDIX - 3

.....Harbour Presidency

.....I would like to enter to the competency examination. I am declaring the additional documents below.

With my best regards

.....

Name - Surname
Signature

ADDRESS :

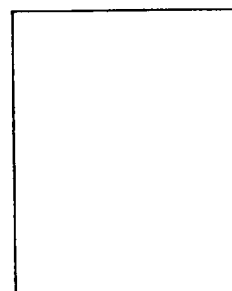
TELEPHONE :

DOCUMENTS :

1. Service documents
2. Seafarer Folder
3. Knowledge Form
4. Photographs (8 pieces, 4.5 X 6)

APPENDIX - 4

KNOWLEDGE FROM FOR SEAFARERS
EXAMINATIONS



NAME SURNAME :

FATHER'S NAME :

BIRTH PLACE - YEAR :

EDUCATION LEVEL :

REGISTRATION PORT :

REGISTRATION NUMBER :

PRESENT COMPETENCY LEVEL :

REQUIRED COMPETENCY LEVEL :

PLACE OF EXAMINATION :

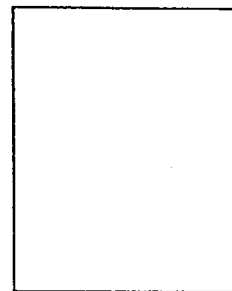
PREVIOUS EXAMINATION PERIODS :

...../.....

NAME SURNAME
Signature

APPENDIX - 5

IDENTIFICATION CERTIFICATE FOR
SEAFARERS EXAMINATIONS



CANDIDATE NO :

NAME SURNAME :

FATHER'S NAME :

BIRTH PLACE - YEAR :

EDUCATION LEVEL :

REGISTRATION PORT :

REGISTRATION NUMBER :

PRESENT COMPETENCY LEVEL :

REQUIRED COMPETENCY LEVEL :

PREVIOUS EXAMINATION PERIODS :

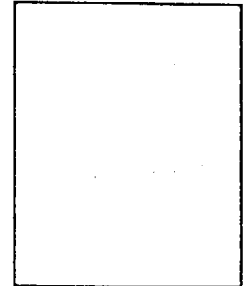
EXAMINATION PERIOD :

PLACE OF EXAMINATION :

SUBJECTS OF EXAMINATION

APPENDIX - 7

SEAFARERS EXAMINATION
SUCCESS CERTIFICATE



DOCUMENT NO :

The seafarer who has a picture above Registration number
son..... entered the seafarer competency level examination and have the success
marks in the periods that are shown below

<u>NAME OF THE SUBJECT</u>	<u>EXAMINATION PERIOD</u>	<u>EXAMINATION SUCCESS MARK</u>
----------------------------	---------------------------	---------------------------------

The seafarer whose name mentioned passed the
examination

...../...../.....

PRESIDENT OF THE EXAMINATION COMMISSION

APPENDIX - 9

TURKISH SEAFARER REGISTRATION KNOWLEDGE CHART

SEAFARERS NO : PROCESS DATE: / / 19
 REGISTRATION NO :
 SEAFARERS FOLDER NO :
 REASON OF GIVEN :
 SURNAME :
 NAME :
 FATHER'S NAME :
 MOTHER'S NAME :
 BIRTH PLACE :
 BIRTH DATE :
 CITY :
 DISTRICT :
 QUARTER VILLAGE :
 STREET : BIRTH CERTIFICATE NO PAGE NO :
 HOME NO :
 REGISTRY OF BIRTHS :
 REASON OF GIVEN : DATE : / / 19
 IDENTITY CARD NO :
 ATTORNEY INVESTIGATION PLACE : DATE : / / 19
 POLICE INVESTIGATION PLACE : DATE : / / 19
 MILITARY STATUS :
 EDUCATION STATUS :
 LAST MEDICAL CHECK-UP PLACE : DATE : / / 19 DECISION :
 COMPETENCY CERTIFICATE NO :

COMPETENCY LEVEL	DATE	COMPETENCY LEVEL	DATE
1	/ / 19	2	/ / 19
3	/ / 19	4	/ / 19
5	/ / 19	6	/ / 19
7	/ / 19	8	/ / 19
9	/ / 19	10	/ / 19

COURSES	DATE	COURSES	DATE
1	/ / 19	2	/ / 19
3	/ / 19	4	/ / 19
5	/ / 19	6	/ / 19
7	/ / 19	8	/ / 19
9	/ / 19	10	/ / 19
11	/ / 19	12	/ / 19
13	/ / 19	14	/ / 19

TOTAL CHARGE: CHARGE NUMBER: DATE:

ADDRESS :

FINGER PRINT SIGNATURE FILLER OF THE FORM CONTROL

APPENDIX - 10

FRANCE-SPAIN
BORDER

IRAN-PAKISTAN
BORDER

BLACK SEA BLACK SEA BLACK SEA BLACK SEA RED SEA MEDITERR
ANEAN

ATLANTIC
OCEAN

AREA a AREA b

BOUNDARIES OF VOYAGE AREAS

REGULATION OF SEAFARERS EXAMINATION TOPIC CONTENTS

Purpose, Support and Contents

Article 1. This regulation is prepared to determine the Examination Topic Contents For Certification of The Seafarers in accordance with the International STCW- 78 convention and convention on standards of Training, Certification , Examination, Watch keeping, and Registering. It covers seafarers who will work on Turkish Flagged ships

Amateur Seafarer Examination Topic Contents

Article 2 . Amateur seafarer examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass = Determination and application of a natural and artificial deviations
2. Knowledge of gyro-compass: Finding and applying gyro-compass error by terrestrial navigation techniques
3. Knowledge of Charts. Symbols, Abbreviations, using the navigational charts, ships routing information and measuring the distance
4. Knowledge of Celestial Navigation
 - a. Ability to determine the ships position by use of various techniques.
 - b. Aids to navigation including lighthouses, beacons and buoys
5. Electronic Navigational Aids
 - a. Gyro - compass
 - b. Automatic pilot
 - c. Dead reckoning
 - d. Echo-sounders

b. Rules of Preventing Collisions at Sea

Content and application of COLREG1972

c. Ship handling

1. Factors that effect the manoeuvre.
 1. Anchoring
 2. Berthing and unberthing
 3. Man over board
 4. Manoeuvre of sailing vessels

d. Communication at sea

VHF communication

e. Seafaring

1. Sail - Handling and sail rigs
2. Deck equipment's
3. Vessel caring, rasping, and paintings.

f. Maritime Law

1. MARPOL 73/78 National Regulation of Preventing pollution at sea
2. Law of ports
3. Port certificates and procedures(Certificate of Registry, Certificate of Seaworthiness
4. Law of safety of life and commodities at sea (life - saving, collision, duty of masters, giving in accident report to the chairmanship of port)
5. Regulation of coastal health
6. Knowledge about the customs and smuggling regulation
7. Insurance , Marine Insurance
8. Duties and responsibilities of a master
9. Collision and Rescue

g. Meteorology

Ability to use and interpret the meteorological information available.

h. Safety at Sea

1. Precautions to be taken following a grounding.
2. Actions to be taken following a collision
3. Fire
4. Abandoning the ship
5. Towing and for being taken in tow
6. Rescuing persons from the sea
7. First Aid

i. Knowledge of Engine

1. Knowledge about the diesel and gas engines of sport and voyage vessels
2. Knowledge about electricity

Boatswain Examination Topic Contents

Article 3. Boatswain examination topic contents are shown below

a. Navigation

1. Reading a compass
2. Knowledge of steering and change - over from manual to automatic control
3. Ability to determine the lighthouses and buoys
4. Basic knowledge of ships routing distance and bearing
5. Basic knowledge of charts
6. Bridge devices and tools

b. Seafaring

1. Rules of preventing collisions, watchkeeping by seeing and hearing.
2. Ropes all kinds of knotting
3. Search and rope and their maintenance
4. Capstan, Anchor and locks, and their maintenance
5. All terms related with Anchoring, commanding and signs
6. Using and maintenance of cargo equipment's

7. Safety and working rules and maintenance of peak and lights
8. Using and maintenance of steering equipment's, substitute steering equipment's
9. Stowage and securing of cargoes, stores and cleaning of stores
10. Carriage of dangerous and hazardous cargoes
11. Maintenance of bilge-way and tanks
12. Rasping and painting techniques
13. Maintenance of deck engines and equipment's
14. Administrating of ratings to maintenance of the ship
15. Using and maintenance of survival crafts
16. Using and maintenance of rescue boats
17. Administrating the personnel in fire- fighting manoeuvres
18. Using and maintenance the fire - fighting equipment's
19. Danger signals
20. Precautions of preventing the sea pollution

Yacht Master Examination Topic Contents

Article 4. Yacht Captain examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determination and application of a natural and artificial deviations
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial navigation compass
3. Knowledge of chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, ships routing information and measuring the distance
5. Knowledge of Celestial Navigation
 - a. Dead reckoning, taking in to account winds, tides, currents and estimated speed
 - b. Ability to determine the ship's position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Rescue- boats sailing
7. Electronic Navigation aids and their usage
 - a. Gyro- compass
 - b. Automatic- pilot
 - c. dead reckoning
 - d. Echo- sounders
 - e. satellite Navigation Systems: Satellite, GPS
 - f. Radar and radar piloting
 - g. Navtex

b. Rules Of Preventing Collisions at Sea

Content and application of COLREG 1972

c. Ship - Handling

1. Factors that effect the manoeuvre
2. Anchoring

3. Berthing and unberthing
4. Man overboard
5. Manoeuvre of sailing vessels

d. Communication at Sea

1. Communication by using Morse code
2. International communication code
3. VHF Communication

e. Seafaring

1. Sail - Handling and sail rigs
2. Deck equipment's
3. Vessel caring, rasping, and paintings.

f. Maritime Law

1. International Maritime Conventions
2. MARPOL 73/78 National Regulation of Preventing Pollution at Sea
3. Law of ports
4. Documents of entering to the port and procedures
5. Law of safety of life and commodities at sea
6. Law of cabotage
7. Related article of law of charges
8. Maritime labour law
9. Regulation of coastal health
10. Knowledge about the customs and smuggling regulation
11. Related articles of criminal law
12. Definition of master, Masters responsibilities and authoring in accordance with public law, Masters responsibilities and authoring in accordance with private law, certificates and documents that will be kept on board, certificate of registry, ship's journal, Airport the master of the ship has to obtain from the court determining any loss to the vessel, or cargo, certificate of tonnage, flag, related sections of register of ship, seaworthiness, in seaworthiness, Maritime accidents, collisions, aviaries, search and rescue
13. Insurance - Marine Insurance

g. Meteorology

1. Meteorological instruments and usage
2. Meteorological equipment's
 - a. Atmosphere, composition, and physical specifications
 - b. Atmospheric Pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
3. Frontal Systems
 - a. Structure of the pressure systems
 - b. Effecting winds, storms and shelters in Turkish coasts.
4. Meteorological reports and estimations
 - a. Meteorological information stations for sailors
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations

h. Safety at Sea

1. Precautions to be taken following a grounding
2. Actions to be taken following a collision
3. Precautions to be taken following a fire
4. Abandoning the ship
5. Towing and for being taken in tow
6. Man overboard
7. Precautions to be taken for the emergencies at port
8. First- Aid
9. Finding and saving organisations(MERSAR)
10. Preventing the pollution at sea

i. Knowledge of Engine

1. Knowledge about the diesel and gas engines of sport and voyage vessels
2. Knowledge about electricity

j. Maritime English

1. IMO standard Marine Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety at sea

Port Captain Examination Topic Contents

Article 5: Port - Master examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determination and application of a natural and artificial deviations
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial navigation compass
3. Knowledge of Merkator projection
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Celestial Navigation
 - a. Dead reckoning
 - b. Ability to determine the ship's position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Electronic Navigation Equipment's
 - a. Dead - reckoning
 - b. Echo- Sounders
 - c. Radar and radar piloting

b. Seafaring

1. Content and application of COLREG 1972
2. Deck equipment's and usage
3. Vessel caring, rasping and paintings

4. Factors that effect the manoeuvre
5. Turning circles and stopping distance
6. Anchoring
7. Berthing and unberthing
8. Man overboard
9. Communication by using Morse code
10. Square flags
11. VHF communications
12. Using barometer and thermometer
13. General meteorological condition of ports
14. Storm warning signals, evaluation of the meteorological reports taken from stations
15. Law and regulations of safety of life and commodities at sea
16. International Regulations related with pollution at sea

c. Safety at Sea

1. Precautions to be taken following a grounding
2. Precautions to be taken following a collision
 1. Precautions to be taken following a fire
 2. Abandoning the ship
 3. Towing and for being taken in tow
 4. Man overboard
5. Precautions to be taken for the emergencies at port
6. First- Aid
7. Preventing the pollution at sea

Coastal Master Examinations Topic Contents

Article 6: Coastal Master examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determination and application of a natural and artificial deviations
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial navigation compass
3. Knowledge of Merkator projection
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Celestial Navigation
 - a. Dead reckoning
 - b. Ability to determine the ship's position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Electronic Navigation Equipment's
 - a. Dead - reckoning
 - b. Echo- Sounders
 - c. Radar and radar piloting
 - d. Loran- c
 - e. Satellite GPS

f. Navtex

b. Seafaring

1. Content and application of VOLREG 1972
2. Prevention of sea pollution and rules of MARPOL(73/78)
 1. Factors that effecting the manoeuvre
 2. Turning circles and stopping distance
 3. Anchoring
 4. Berthing and unberthing
 5. Man overboard

c. Communications at Sea

1. Communication by using Morse code
2. International sailing code 3
3. VHF Turkish - English communication
4. Radio- telephone communication

d. Cargo handling and Stowage

1. Ship construction and specifications
2. Deck equipment's
3. Tensile on ship
4. Loading line and draft marks
5. Displacement
6. Flotation
7. Effects of sea water density
8. Action of gravity center
9. Free liquid effect
10. Trim
11. Dry stores
 - a. Survey of stores and preparation for cargo
 - b. Separate loading
 - c. Binding of the cargoes
 - d. Control of air conditioning and sweating
 - e. Deck Cargoes
12. Cargo handling
 - a. Cargo handling equipment's
 - b. Security at cargo handling
 - c. Deep tank cargoes
13. Dangerous- hazardous (can pollute the sea) cargoes
 - a. Packed dangerous cargoes
 - b. Cargoes in bulk
 - c. Handling grain in bulk
14. Tankers
15. Safety precautions entering the closed areas
16. Stowage and stability measuring
 - a. Cargo Measuring
 - b. Draft, trim and stability

e. Maritime Law

1. Law at safety of life and commodities at sea
2. Law of ports
3. Related articles of law of charges
4. Maritime labour law
5. Definition of master, master responsibility and outthoring in accordance with private law, certificates and documents that will be kept on board, certificate of registry, ship's journal, a report the master of the ship has to obtain from the court determining any loss to the vessel or cargo, certificate of tonnage, seaworthiness, Maritime accidents, collision's, aviaries, evacuation and help.
6. Law of insurance, related articles of Turkish law and commerce
7. A convention related with sea pollution and lawful sides of international conventions

f. Meteorology

1. Using Barometer and thermometer
2. General meteorological conditions of the port that the worked
3. Storm warning signals and evaluations of the meteorological reports taken from stations

g. Safety at Sea

1. Precautions to be taken following a grounding
2. Precautions to be taken following a collision
3. Precautions to be taken following a fire
4. Abandoning the ship
5. Towing and for being taken in tow
6. Man overboard
7. Precautions to be taken for the emergencies at port
8. First- Aid
9. Preventing the pollution at sea

Watchkeeping Officer Examinations Topic Contents (for Middle Voyage)

Article 7: Watchkeeping officer examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determination and application of a natural and artificial deviations
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial navigation compass
3. Knowledge of Merkator projection
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Celestial Navigation
 - a. Dead reckoning taking in to account winds, tides and currents.
 - b. Ability to determine the ship's position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Electronic Navigation Equipment's
 - a. Dead - reckoning

- b. Echo- Sounders
- c. Radar and radar piloting
- d. Loran- c
- e. Satellite GPS
- f. Navtex

b. Watch keeping

- 1. Principles of Watchkeeping
 - a. Regulations for preventing collisions at sea
 - b. Maintain a safe navigational watch
- 2. Maintain a safe anchoring- watch
- 3. Principles of watchkeeping at port
 - a. In normal conditions
 - b. Ships carrying dangerous cargoes
- 4. Preventing the pollution
 - a. Rules of Marpol (73/78)
 - b. Precautions to be taken first
 - c. Precautions to be taken following the pollution

c. Ship - Handling

- 1. Factors that effect the manoeuvre
- 2. Turning circles and stopping distance
- 3. Anchoring
- 4. Berthing and unberthing
- 5. Man overboard

d. Communication at Sea

- 1. Communication by using morse code
- 2. International communication code 2
- 3. VHF Communication
- 4. Radio - telephone communications

e. Ship Structure and Balance

- 1. Ship structure and specifications
- 2. Deck Equipment's
- 3. Tensile on ship
- 4. Stores, tanks and circuits
- 5. Loading line and draft marks
- 6. Displacement
- 7. Floation force
- 8. Effects of seawater density
- 9. Action of gravity center
- 10. Free- liquid effect
- 11. Trim

f. Cargo Handling and Stowage

- 1. Dry Cargoes
 - a. Survey of stores and preparation for cargo
 - b. Separate loading

- c. Binding of the cargoes
- d. Inspection of air conditioning and sweating
- e. Deck Cargoes
- 2. Cargo Handling
 - a. Cargo- handling equipment's
 - b. Security at cargo- handling
 - c. Deep tank cargoes
- 3. Dangerous- Hazardous (Can pollute the sea) Cargoes
 - a. Packed dangerous cargoes
 - b. Cargoes in bulk
 - c. Handling the grain in bulk
- 4. Tankers
- 5. Safety precautions entering the closed areas
- 6. Stowage's and stability measuring
 - a. Cargo measuring
 - b. Draft, trim and stability
- g. Meteorology**
 - 1. Using the barometer and thermometer
 - 2. General meteorological condition of the port that he worked
 - 3. Storm warning signals and evaluation of the meteorological reports taken stations
- h. Safety at Sea**
 - 1. Precautions to be taken following a grounding
 - 2. Precautions to be taken following a collision
 - 3. Precautions to be taken following a fire
 - 4. Abandoning the ship
 - 5. Towing and for being taken in tow
 - 6. Man overboard
 - 7. Precautions to be taken for the emergencies at port
 - 8. First- Aid
 - 9. Preventing the pollution at sea
- i. Maritime English**
IMO standard Maritime Dictionary

Chief Officer Examinations Topic Contents (for Middle Voyage)

Article 7: Chief officer examination topic contents are shown below

- a. Navigation**
 - 1. Knowledge of magnetic compass. Determination and application of a natural and artificial deviations
 - 2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial navigation compass
 - 3. Knowledge of Merkator projection
 - 4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers

5. Knowledge of Celestial Navigation
 - a. Dead reckoning taking in to account winds, tides and currents.
 - b. Ability to determine the ship's position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Tides and knowledge of tides = By using the tidal ruler's, ability to calculate tidal conditions
7. Life- boat sailing
8. Electronic navigation equipment's, recording and using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Radio- direction finder
 - e. Hyperbolic Navigation Systems (Decca, Loran - c, Omega)
 - f. Satellite Navigation Systems (Satellite, GPS)
 - g. Radar and radar piloting
 - h. Arpa
 - i. Navtex

b. Watch keeping

1. Principles of Watch keeping
 - a. Regulations for preventing collisions at sea
 - b. Maintain a safe navigational watch
2. Maintain a safe anchoring- watch
3. Principles of watch keeping at port
 - a. In normal conditions
 - b. Ships carrying dangerous cargoes
4. Preventing the pollution
 - a. Rules of Marpol (73/78)
 - b. Precautions to be taken first
 - c. Precautions be taken following the pollution

c. Ship Handling

1. Factors that effect the manoeuvre
2. Turning circles and stopping distance
3. Anchoring
4. Berthing and unberthing
5. Pilot taking and giving
6. Man overboard
7. Factors that effect the manoeuvre in shallow waters

d. Communication at Sea

1. Communication by using Morse codes
2. International code of signal
3. Radio - telephone communications

e. Ship Structure and Balance

1. Ship structure and specifications
2. Deck Equipment's

3. Stores, tanks and circuits
4. Loading line and draft marks
5. Displacement
6. Flotation
7. Effects of sea water density
8. Action of gravity center
9. Free- liquid effect
10. Trim

f. Cargo Handling and Stowage

1. Dry Cargoes
2. Cargo Handling
3. Dangerous- Hazardous (Can pollute the sea) Cargoes
 - a. Packed dangerous cargoes
 - b. Cargoes in bulk
 - c. Handling the grain in bulk
4. Tankers
5. Safety Precautions Entering The Closed Areas
6. Stowage's and stability measuring
 - a. Cargo measuring
 - b. Draft, trim and stability

g. Meteorology

1. Meteorological equipment's and their usage
2. Elements of meteorology
3. Systems of forehead
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for sailors
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations

h. Safety at Sea

1. Planing of emergency situation
2. Precaution for the safe of personnel and passengers in the emergency station.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipment's
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
3. Search and rescue organisations (Mersar)

i. Maritime English

1. IMO standard Maritime Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety at sea

Master Class 4 Examinations Topic Contents (for Middle Voyage)

Article 9: Master Class 4 examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determination and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship's position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Tides and knowledge of tides = By using the tidal ruler's, ability to calculate tidal conditions
7. Life- boat sailing
8. Electronic navigation equipment's, recognising and using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- direction finder
 - f. Hyperbolic Navigation systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and radar piloting
 - i. Arpa
 - j. Navtex

b. Watch keeping

1. Principles of Watch keeping
 - a. Regulations for preventing collisions at sea
 - b. Maintain a safe navigational watch
2. Maintain a safe anchoring- watch
3. Principles of watch keeping at port
 - a. In normal conditions
 - b. Ships carrying dangerous cargoes
4. Preventing the pollution
 - a. Rules of Marpol (73/78)

- b. Precautions to be taken first
- c. Precautions to be taken following the pollution

c. Ship Handling

- 1. Factors that effect the manoeuvre
- 2. Turning circles and stopping distance
- 3. Anchoring
- 4. Berthing and unberthing
- 5. Pilot taking and giving
- 6. Man overboard
- 7. Factors that effect the manoeuvre in shallow waters

d. Communication at Sea

- 1. Communication by using Morse codes
- 2. International code of signal
- 3. Radio - telephone communications

e. Ship Structure and Balance

- 1. Ship structure and specifications
- 2. Deck Equipment's
- 3. Tensile on ship
- 4. Stores, tanks and circuits
- 5. Loading line and draft marks
- 6. Displacement
- 7. Flotation Force
- 8. Effects of sea water density
- 9. Static stability
- 10. Starting curves
- 11. Stability stability
- 12. Action of gravity center
- 13. Free- liquid effect
- 14. Trim
- 15. Partial loss of flotation power

f. Cargo Handling And Stowage

- 1. Dry Cargoes
 - a. Survey of stores and preparation for cargo
 - b. Separate loading
 - c. Binding of the cargoes
 - d. Inspection of air conditioning and sweating
 - e. Deck Cargoes
 - f. Refrigerant Cargoes
 - g. Container stowage
- 2. Cargo Handling
 - a. Cargo- handling equipment's
 - b. Security at cargo- handling
 - c. Deep tank cargoes
- 3. Dangerous- Hazardous (Can pollute the sea) Cargoes
 - a. Packed dangerous cargoes

- b. Cargoes in bulk
 - c. Handling the grain in bulk
 - 4. Tankers
 - 5. Safety precautions entering the closed areas
 - 6. Stowage's and stability measuring
 - a. Cargo measuring
 - b. Draft, trim and stability
- g. Meteorology**
- 1. Meteorological equipment's and their usage
 - 2. Elements of meteorology
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
 - 3. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
 - 4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for sailors
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations

h. Safety at Sea

- 1. Planing of emergency situation
- 2. Precautions for the safe of personnel and passengers in the emergency station.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipment's
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
 - k. Search and rescue organisations (Mersar)

i. Maritime English

- 1. IMO standard Maritime Dictionary
- 2. Communication English
- 3. To understand the publications related with meteorology and safety of sea

Master Class 3 Examinations Topic Contents (for Middle Voyage)

Article 10: Master Class 3 examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Tides and knowledge of tides - By using the tidal ruler's, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Sextant and to be settled
 - d. Sun rise, set periods
 - e. Latitude and longitude
8. Life- boat sailing
9. Electronic navigation equipment's
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- direction finder
 - f. Hyperbolic Navigation systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and radar piloting
 - i. ARPA Radar
 - j. Integrated Navigational Systems
 - k. Navtex

b. Watch Keeping

1. Principles of Navigational Watch keeping
 - a. Regulations for preventing collisions at sea
 - b. Principles of safe navigational watch
2. Maintain a safe anchoring- watch
3. Principles of watch keeping at port
 - a. In normal conditions
 - b. Ships carrying dangerous cargoes
4. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken first
 - c. Precautions to be taken following the pollution

c. Ship Handling

1. Factors that effect the manoeuvre

2. Turning circles and stopping distance
3. Anchoring
4. Berthing and unberthing
5. Pilot taking and giving
6. Man overboard
7. Factors that effect the manoeuvre in shallow waters

d. Communication at Sea

1. Communication by using Morse code
2. International signal code
3. Radio - telephone communications

e. Ship Structure and Balance

1. Ship structure and specifications
2. Deck Equipment's
3. Tensile on ship
4. Stores, tanks and circuits
5. Loading line and draft marks
6. Displacement
7. Flotation Force
8. Effects of sea water density
9. Static stability
10. Starting stability
11. Stability curves
12. Action of gravity center
13. Free- liquid effect
14. Trim
15. Party loss of flotation power

f. Cargo Handling and Stowage

1. Dry Cargoes
 - a. Survey of stores and preparation for cargo
 - b. Separate loading
 - c. Binding of the cargoes
 - d. Inspection of air conditioning and sweating
 - e. Deck Cargoes
 - f. Refrigerant Cargoes
 - g. Container stowage
2. Cargo Handling
 - a. Cargo- handling equipment's
 - b. Security at cargo- handling
 - c. Deep tank cargoes
3. Dangerous- Hazardous (Can polluted the sea) Cargoes
 - a. Packed dangerous cargoes
 - b. Cargoes in bulk
 - c. Handling the grain in bulk
4. Tankers
5. Safety precautions entering the closed areas
6. Stowage's and stability measurings

- a. Cargo measurements
- b. Draft, trim and stability

g. Meteorology

- 1. Meteorological equipment's and their usage
- 2. Elements of meteorology
 - a. Atmospheric pressure
 - b. Wind
 - c. Clouds and precipitation
 - d. Visibility
- 3. Pressure Systems?
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
- 4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for sailors
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations

d. Safety at Sea

- 1. Planing of emergency situation
- 2. Precautions for the safe of personnel and passengers in the emergency station.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipment's
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
 - k. Search and rescue organisations (Mersar)

i. Maritime English

- 1. IMO standard Maritime Dictionary
- 2. Communication English
- 3. To understand the publications related with meteorology and safety of sea

Master Class 2 Examinations Topic Contents (for Middle Voyage)

Article 11: Master Class 2 examination topic contents are shown below

a. Navigation

- 1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
- 2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
- 3. Knowledge of Chart projections

4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship position
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Tides and knowledge of tides - By using the tidal ruler's, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Sextant and to be settled
 - d. Sun rise, set periods
 - e. Attitude and longitude
8. Life- boat sailing
9. Electronic navigation Equipment's, Recognising and Using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- direction finder
 - f. Hyperbolic Navigation systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and radar piloting
 - i. ARPA Radar
 - j. Integrated Navigational Systems
 - k. Navtex
10. Navigation Planning in Coastal Navigation
 - a. In restricted water (Day and night)
 - b. In heavy traffic and traffic separation schemes
 - c. In restricted visibility conditions

b. Watch keeping

1. Watch keeping regulations and methods
2. Regulations for preventing collisions at sea
3. Maintain a safe navigational watch
4. Maintain a safe anchoring- watch
5. Maintain an effective and safe navigational watch in normal conditions
6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution
 - d. An intervention methods in the case of pollution
 - e. Reporting the accidents

c. Ship Handling

1. Turning circles and stopping distance
2. Anchoring (with one or two anchors), Anchor dragging

3. Factors that effect the berthing and unberthing (with or without tugs)
4. Rules related with taking a pilot
5. Manoeuvres when man overboard
6. Manoeuvres in shallow waters, rivers and canals
7. Ship handling in heavy seas
8. Helicopter operations

d. Communication at Sea

1. Communication by using Morse code
2. International code of signals
3. Radio - telephone communications
4. Radiotelex
5. GMOS
6. Procedures related with reporting the emergencies

e. Ship Structure and Balance

1. Ship structure
2. Ship building materials
3. Wending techniques
4. Store curtains
5. Water proofed sections
6. Corrosion and corrosion protection
7. Surveys
8. Docking procedure
9. Forces and momentum
10. Displacement
11. Floation force
12. Static stability
13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic stability
17. Stability calculations in grain handling
18. Draft Survey
19. Cut - off Force and Curving momentum

f. Cargo Handling and Stowage

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes
6. Refrigerant Cargoes
7. Cargo equipment's and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology

1. Meteorological equipment's and their usage
2. Elements of meteorology
 - a. Atmospheric pressure
 - b. Wind
 - c. Clouds and precipitation
 - d. Visibility
3. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for sailors
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations
5. Streams
6. Waves
7. Knowledge of meteorological navigation

h. Safety at Sea

1. Planing of emergency situation
2. Precautions for the safe of personnel and passengers in the emergency station.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipment's
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
 - k. Search and rescue organisations (Mersar)

i Maritime English

1. IMO standard Maritime Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety of sea
4. To understand and to write English language navigational publications

Master Class 1 Examinations Topic Contents (for Middle Voyage)

Article 12: Master Class 1 examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means

3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship position in all conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Tides and knowledge of tides; by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Rising and setting times of sun and the moon
 - d. Calculation of observing
 - e. Finding the position by solar observation
 - f. Finding the latitude in accordance with longitude of sun
 - g. Recognition of the star, finding the star, finding the position by observing the star
 - h. Finding the latitude and compass error by observing Polaris
8. Life- boat sailing
9. Electronic Navigation Equipment's, Recognising and Using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- direction finder
 - f. Hyperbolic Navigation systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and radar piloting
 - i. ARPA Radar
 - j. Integrated Navigational Systems
 - k. Navtex
10. Navigation Planning in all conditions
 - a. Navigation planning in coastal Navigation
 - b. In restricted water (Day and night)
 - c. In heavy traffic and traffic separation schemes
 - d. In restricted visibility conditions

b. Watch keeping

1. Watch keeping regulations and methods
2. Regulations for preventing collisions at sea
3. Maintain a safe navigational watch
4. Maintain a safe anchoring watch
5. Maintain an effective and safe navigational watch in normal conditions
6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution
 - d. An intervention methods in the case of pollution

e. Reporting the accidents

c. Ship Handling

1. Turning circles and stopping distance
2. Anchoring (with one or two anchors), Anchor dragging
3. Factors that effect the berthing and unberthing (with or without tugs)
4. Rules related with taking a pilot
5. Manoeuvres when man overboard
6. Manoeuvres in shallow waters, rivers and canals
7. Ship handling in heavy seas
8. Helicopter operations

d. Communications at Sea

1. Communication by using Morse code
2. International code of signals
3. Radio - telephone communications
4. Radiotelex
5. GMDSS
6. Procedures related with reporting the emergencies

e. Structure and Balance

1. Ship structure
2. Ship building materials
3. Wending techniques
4. Store curtains
5. Water proofed sections
6. Corrosion and corrosion protection
7. Surveys
8. Docking procedure
9. Forces and momentum
10. Displacement
11. Floation force
12. Static stability
13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic balance
17. Balance calculations in grain handling
18. Dynamic stability
19. Stability calculations in grain handling
20. Draft Survey
21. Cut - off Force and Curving momentum

f. Cargo Handling and Stowages

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes

6. Refrigerant Cargoes
7. Cargo equipments and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology

1. Meteorological equipment's and their usage
2. Elements of meteorology
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
 - f. Pressure Systems
 - g. Structure of pressure systems
 - h. Pressure systems established in Mediterranean
4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for seafarers
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations
5. Streams
6. Waves
7. Knowledge of meteorological navigation

h. Safety at Sea

1. Planing of emergency situation
2. Precautions for the safe of personnel and passengers in the emergency station.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipment's
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
3. Search and rescue organisations (Mersar)

i. Maritime English

1. IMO standard Maritime Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety at sea
4. To understand and to write English language navigational publications

j. Ship Engines

1. Main Engine
2. Diesel Engines
3. Steamed turbine systems
4. Propeller and shaft
5. Bridge control
6. Auxiliary Machinery's
 - a. Boilers
 - b. Drinkable water production systems
 - c. Pumps
 - d. Steering Engine
 - e. Alternator and electric circuits
 - f. Refrigerating
 - g. Air conditioner and air conditioning
 - h. Balancers
 - i. Purifying
 - j. Garbage destroyer
 - k. Deck engines
 - l. Hydraulic systems
 - m. Ship- Engine Terminology's
 - n. Fuel expenditure

k. Maritime Law

1. International Maritime Conventions
2. SOLAS- 74, STCW - 78, ITU Radio Rules
3. MARPOL 73/78 international regulation related with pollution
4. ILO Regulation and decisions
5. Port- entry certificates and procedures, International Health Rules
6. Law of safety of life and commodities at sea
7. Regulation about the quantity and quality of seafarers
8. Law of Cabotage
9. Related sections of Law of Charges
10. Maritime labour law
11. Regulation of coastal law
12. Law of sea- Robbery
13. Knowledge about the custom smuggling regulation
14. Related articles of Criminal Law
15. Ship definitions
16. Definition of master, his responsibilities and authority in public law, certificates and documents that will be kept on board, Certificate of registry, ship's journal, certificate of tonnage, Master's authority and authorities and duties of captain in the state of being guilty, contracts of affreightment , Bill of lading, Flag, Register of ship, seaworthiness, rights and responsibilities of the ship owners, sea accidents(collisions, aviaries, Search and Rescue
17. Insurance - Marine Insurance, Club Insurance

Restricted Watch Keeping Officer Examinations Topic Contents (for Middle Voyage)

Article 13 Restricted watch keeping officer examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship position in all conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including lighthouses, beacons and buoys
6. Tides and knowledge of tides; by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Sextant
 - d. Rising and setting times of sun and the moon
 - e. Finding the latitude in accordance with longitude of sun
8. Life- boat SAILING
9. Electronic Navigational Equipment's
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- direction finder
 - f. Hyperbolic Navigation Systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and radar piloting
 - i. Integrated Navigational Systems
 - j. NAVTEX

b. Watch keeping

1. Principles of Navigational Watch keeping
 - a. Regulations for preventing collisions at sea
 - b. Principles of safe navigational watch
2. Maintain a safe anchoring- watch
3. Principles of watchkeeping at port
 - a. In normal conditions
 - b. Ships carrying dangerous cargoes
4. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken first
 - c. Precautions to be taken following the pollution

d. Ship Handling

1. Factors that effect the manoeuvre
2. Turning circles and stopping distance
3. Anchoring
4. Berthing and unberthing
5. Pilot taking and giving
6. Man overboard
7. Factors that effect the manoeuvre in shallow waters

e. Communication at Sea

1. Communication by using Morse codes
2. International code of signal
3. Radio - telephone communications

f. Ship Structure and Balance

1. Ship structure and specifications
2. Deck Equipment's
3. Tensile on ship
4. Store, tanks and circuits
5. Loading line and draft marks
6. Displacement
7. Floation Force
8. Effects of sea water density
9. Static stability
10. Starting stability
11. Stability curves
12. Action of gravity center
13. Free- liquid effect
14. Trim
15. Party loss of floation power

g. Cargo- Handling And Stowage

1. Dry Cargoes
 - a. Survey of stores and preparation for cargo
 - b. Separate loading
 - c. Binding of the cargoes
 - d. Inspection of air conditioning and sweating
 - e. Deck Cargoes
 - f. Refrigerant Cargoes
 - g. Container stowage
2. Cargo Handling
 - a. Cargo- handling equipment's
 - b. Security at cargo- handling
 - c. Deep tank cargoes
3. Dangerous- Hazardous (Can polluted the sea) Cargoes
 - a. Packed dangerous cargoes
 - b. Cargoes in bulk

- c. Handling the grain in bulk
 - 4. Tankers
 - 5. Safety Precautions Entering Closed Areas
 - 6. Stowage and stability measurings
 - a. Cargo measurings
 - b. Draft, trim and stability
- h. Meteorology**
- 1. Meteorological equipment's and their usage
 - 2. Elements of meteorology
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
 - 3. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
 - 4. Meteorological reports and meteorological estimates
 - a. Meteorological information stations for sailors
 - b. Meteorological observations. recording and reporting
 - c. Meteorological estimations

i. Safety At Sea

- 1. Planing of emergency situation
- 2. Precautions for the safe of personnel and passengers in the emergency situation.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipment's
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for the emergencies at port
 - k. Search and rescue organisations (Mersar)

j. Maritime English

- 1. IMO standard Maritime Dictionary
- 2. Communication English
- 3. To understand the publications related with meteorology and safety at sea

Restricted Chief Officer Examinations Topic Contents (for Middle Voyage)

Article 14. Restricted Chief Officer examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of coastal navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship's in every conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including light- houses, beacons and buoys
6. Tides and knowledge of tides; by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Sextant and to be settled
 - d. Sun rise, set periods
 - e. Latitude and longitude
8. Life- boat Sailing
9. Electronic Navigational Equipment's
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- Direction Finder
 - f. Hyperbolic Navigation Systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and Radar piloting
 - i. ARPA Radar
 - j. Integrated Navigational Systems
 - k. NAVTEX
10. Navigation planning in coastal Navigation
 - a. In restricted water (Day and night)
 - b. In heavy traffic and traffic separation schemes
 - c. In restricted visibility conditions

b. Watch keeping

1. Watch keeping regulations and methods
2. Regulations for preventing collisions at sea
3. Maintain a safe navigational watch
4. Maintain a safe anchoring watch
5. Maintain an effective and safe navigational watch in normal conditions
6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution

- d. An intervention methods in the case of pollution
- e. Reporting the accidents

c. Ship- Handling

1. Turning circles and stopping distance
2. Anchoring (with one or two anchors), Anchor dragging
3. Factors that effect the berthing and unberthing (with or without tugs)
4. Rules related with taking a pilot
5. Manoeuvres when man overboard
6. Manoeuvres in shallow waters, rivers and canals
7. Ship handling in heavy seas
8. Helicopter operations

d. Communications At Sea

1. Communication by using morse code
2. International code of signals
3. Radio - telephone communications
4. Radiotelex
5. GMDSS
6. Procedures related with reporting the emergencies

e. Ship Structure And Balance

1. Ship structure
2. Ship building materials
3. Wending techniques
4. Store curtains
5. Water proofed sections
6. Corrosion and corrosion protection
7. Surveys
8. Docking procedure
9. Forces and momentums
10. Displacement
11. Floation Power
12. Static stability
13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic stability
17. Stability calculations in grain handling
18. Draft Survey
19. Cut - off Force and Curving momentum

f. Cargo- Handling And Stowage

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes
6. Refrigerant Cargoes

7. Cargo equipments and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology

1. Meteorological equipments and their usage
2. Elements of meteorology.
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
3. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for seafarers
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations
5. Streams
6. Waves
7. Knowledge of meteorological navigation

h. Safety At Sea

1. Planing of emergency situation
2. Precautions for the safe of personnel and passengers in the emergency situation.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipments
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
3. Search and rescue organisations (Mersar).

i. Maritime English

1. IMO standard Maritime Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety at sea
4. To understand and to write English language navigational publications

Restricted Master Examinations Topic Contents (for Middle Voyage)

Article 15. Restricted Master examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge Of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship's in every conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including light- houses, beacons and buoys
6. Tides and knowledge of tides: by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Rising and setting times sun and the moon
 - d. Finding the position by solar observation
 - e. Finding the latitude in accordance with longitude of sun
 - f. Recognition of the star, finding the star, finding the position by observing the star
 - g. Finding the latitude and compass error by observing polaris
8. Life- boat Sailing
9. Electronic Navigational Equipment's. Recognising and using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- Direction Finder
 - f. Hyperbolic Navigation Systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and Radar piloting
 - i. ARPA Radar
 - j. NAVTEX
10. Navigation planning in all conditions
 - a. Navigation planning in coastal Navigation
 - b. In restricted water (Day and night)
 - c. In heavy traffic and traffic separation schemes
 - d. In restricted visibility conditions

b. Watch Keeping

1. Watch keeping regulations and methods
2. Regulations for preventing collisions at sea
3. Maintain a safe navigational watch

4. Maintain a safe anchoring watch
5. Maintain an effective and safe navigational watch in normal conditions
6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution
 - d. An intervention methods in the case of pollution
 - e. Reporting the accidents

c. Ship-Handling

1. Turning circles and stopping distance
2. Anchoring (with one or two anchors), Anchor dragging
3. Factors that effect the berthing and unberthing (with or without tugs)
4. Rules related with taking a pilot
5. Manoeuvres when man overboard
6. Manoeuvres in shallow waters, rivers and canals
7. Ship handling in heavy seas
8. Helicopter operations

d. Communications At Sea

1. Communication by using morse code
2. International code of signals
3. Radio - telephone communications
4. Radiotelex
5. GMDSS
6. Procedures related with reporting the emergencies

e. Ship Structure And Balance

1. Ship structure
2. Ship building materials
3. Wending techniques
4. Store curtains
5. Water proofed sections
6. Corrosion and corrosion protection
7. Surveys
8. Docking procedure
9. Forces and momentums
10. Deplacement
11. Floation Force
12. Static stability
13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic Balance
17. Balance calculations in grain handling
18. Draft Survey
19. Cut - off Force and Curving momentum

f. Cargo- Handling And Stowage

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes
6. Refrigerant Cargoes
7. Cargo equipments and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology

1. Meteorological equipments and their usage
2. Elements of meteorology
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
3. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for seafarers
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations
5. Streams
6. Waves
7. Knowledge of meteorological navigation

h. Safety At Sea

1. Planing of emergency situation
2. Precautions for the safe of personnel and passengers in the emergency situation.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipments
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for the emergencies at port
3. Search and rescue organisations (Mersar)

i. Maritime English

1. IMO standard Maritime Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety at sea
4. To understand and to write English language navigational publications

j. Ship Engines

1. Main Engine
2. Diesel Engines
3. Steamed turbine systems
4. Propeller and shaft
5. Bridge control
6. Auxiliary Machineries
 - a. Boilers
 - b. Drinkable water production systems
 - c. Pumps
 - d. Steering Engine
 - e. Generator
 - f. Alternator and electric circuits
 - g. Refrigerating
 - h. Air conditioner and air conditioning
 - i. Balancers
 - j. Bilge-way separators and filters
 - k. Purifying
 - l. Garbage destroyer
 - m. Deck engines
 - n. Hydraulic systems
 - o. Ship- Engine Terminology's
 - p. Fuel expenditure

k. Maritime Law

1. International Maritime Conventions
2. SOLAS- 74, STCW - 78, ITU Radio Rules
3. MARPOL 73/78 international regulation related with pollution
4. Tonnage measuring
5. ILO Regulation and decisions
6. Port- entry certificates and procedures, International Health Rules
7. Law of safety of life and commodities at sea
8. Regulation about the quantity and quality of seafarers
9. Law of Cabotage
10. Related sections of Law of Charges
11. Maritime labour law
12. Regulation of coastal health
13. Law of sea- Robbery
14. Knowledge about the custom smuggling regulation
15. Related articles of Criminal Law
16. Ship definitions

17. Definition of master, his responsibilities and authority in public law, certificates and documents that will be kept on board, Certificate of registry, ship's journal, certificate of tonilato, Master's authority and authorities and duties of captain in the state of being guilty, contracts of affreightment , Bill of lading, Flag, Register of ship, seaworthiness, rights and responsibilities of the ship owners, sea accidents(collusions, aviaries, Search and Rescue
18. Insurance - Marine Insurance, Club Insurance
19. Lawfulness side of taking a pilot to a ship

Ocean-going Watchkeeping Officer Examinations Topic Contents

Article 16. Oceangoing watchkeeping examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of coastal navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship's in every conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including light- houses, beacons and buoys
6. Tides and knowledge of tides; by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Rising and setting times sun and the moon
 - d. Finding the position by solar observation
 - e. Finding the latitude in accordance with longitude of sun
 - f. Recognition of the star, finding the star, finding the position by observing the star
 - g. Finding the latitude and compass error by observing polaris
8. Life- boat Sailing
9. Electronic Navigational Equipment's. Recognising and using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- Direction Finder
 - f. Hyperbolic Navigation Systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and Radar piloting
 - i. ARPA Radar
 - j. NAVTEX
10. Navigation planning in all conditions
 - a. Navigation planning in coastal Navigation

- b. In restricted water (Day and night)
- c. In heavy traffic and traffic separation schemes
- d. In restricted visibility conditions

b. Watch Keeping

- 1. Watch keeping regulations and methods
- 2. Regulations for preventing collisions at sea
- 3. Maintain a safe navigational watch
- 4. Maintain a safe anchoring watch
- 5. Maintain an effective and safe navigational watch in normal conditions
- 6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
- 7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution
 - d. An intervention methods in the case of pollution
 - e. Reporting the accidents

c. Ship-Handling

- 1. Turning circles and stopping distance
- 2. Anchoring (with one or two anchors), Anchor dragging
- 3. Factors that effect the berthing and unberthing (with or without tugs)
- 4. Rules related with taking a pilot
- 5. Manoeuvres when man overboard
- 6. Manoeuvres in shallow waters, rivers and canals
- 7. Ship handling in heavy seas
- 8. Helicopter operations

d. Communications At Sea

- 1. Communication by using morse code
- 2. International code of signals
- 3. Radio - telephone communications
- 4. Radiotelex
- 5. GMDSS
- 6. Procedures related with reporting the emergencies

e. Ship Structure And Balance

- 1. Ship structure
- 2. Ship building materials
- 3. Wending techniques
- 4. Store curtains
- 5. Water proofed sections
- 6. Corrosion and corrosion protection
- 7. Surveys
- 8. Docking procedure
- 9. Forces and momentums
- 10. Displacement
- 11. Floation Force
- 12. Static stability

13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic Balance
17. Balance calculations in grain handling
18. Draft Survey
19. Cut - off Force and Curving momentum

f. Cargo-Handling And Stowage

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes
6. Refrigerant Cargoes
7. Cargo equipments and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology

1. Meteorological equipments and their usage
2. Elements of meteorology
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
3. Climatology. (Wind and pressure systems established on the oceans)
4. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
5. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for seafarers
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations
6. Streams
7. Waves
8. Knowledge of meteorological navigation

h. Safety At Sea

1. Planing of emergency situation
2. Precautions for the safe of personnel and passengers in the emergency situation.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship

- e. Usage of the spare - steer equipments
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for the emergencies at port
3. Search and rescue organisations (Mersar)

i. Maritime English

- 1. IMO standard Maritime Dictionary
- 2. Communication English
- 3. To understand the publications related with meteorology and safety at sea
- 4. To understand and to write English language navigational publications

j. Ship Engines

- 1. Main Engine
- 2. Diesel Engines
- 3. Steamed turbine systems
- 4. Propeller and shaft
- 5. Bridge control
- 6. Auxiliary Machineries
 - a. Boilers
 - b. Drinkable water production systems
 - c. Pumps
 - d. Steering Engine
 - e. Generator
 - f. Alternator and electric circuits
 - g. Refrigerating
 - h. Air conditioner and air conditioning
 - i. Balancers
 - j. Bilge-way separators and filters
 - k. Purifying
 - l. Garbage destroyer
 - m. Deck engines
 - n. Hydraulic systems
 - o. Ship- Engine Terminology's
 - p. Fuel expenditure

k. Maritime Law

- 1. International Maritime Conventions
- 2. SOLAS- 74, STCW - 78, ITU Radio Rules
- 3. MARPOL 73/78 international regulation related with pollution
- 4. Tonnage measuring
- 5. ILO Regulation and decisions
- 6. Port- entry certificates and procedures, International Health Rules
- 7. Law of safety of life and commodities at sea
- 8. Regulation about the quantity and quality of seafarers
- 9. Law of Cabotage
- 10. Related sections of Law of Charges

11. Maritime labour law
12. Regulation of coastal health
13. Law of sea- Robbery
14. Knowledge about the custom smuggling regulation
15. Related articles of Criminal Law
16. Ship definitions
17. Definition of master, his responsibilities and authority in public law, certificates and documents that will be kept on board, Certificate of registry, ship's journal, certificate of tonilato, Master's authority and authorities and duties of captain in the state of being guilty, contracts of affreightment , Bill of lading, Flag, Register of ship, seaworthiness, rights and responsibilities of the ship owners, sea accidents(collusions, aviaries, Search and Rescue
18. Insurance - Marine Insurance, Club Insurance
19. Lawfulness side of taking a pilot to a ship

Ocean-going Chief Officer Examinations Topic Contents

Article 17. Oceangoing Chief officer, examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge of coastal navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship's in every conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including light- houses, beacons and buoys
6. Tides and knowledge of tides; by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Rising and setting times sun and the moon
 - d. Finding the position by solar observation
 - e. Finding the latitude in accordance with longitude of sun
 - f. Recognition of the star, finding the star, finding the position by observing the star
 - g. Finding the latitude and compass error by observing Polaris
8. Life- boat Sailing
9. Electronic Navigational Equipment's. Recognising and using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- Direction Finder
 - f. Hyperbolic Navigation Systems (Decca, Loran - C, Omega)

- g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and Radar piloting
 - i. ARPA Radar
 - j. NAVTEX
10. Navigation planning in all conditions
- a. Navigation planning in coastal Navigation
 - b. In restricted water (Day and night)
 - c. In heavy traffic and traffic separation schemes
 - d. In restricted visibility conditions

b. Watch Keeping

- 1. Watch keeping regulations and methods
- 2. Regulations for preventing collisions at sea
- 3. Maintain a safe navigational watch
- 4. Maintain a safe anchoring watch
- 5. Maintain an effective and safe navigational watch in normal conditions
- 6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
- 7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution
 - d. An intervention methods in the case of pollution
 - e. Reporting the accidents

c. Ship-Handling

- 1. Turning circles and stopping distance
- 2. Anchoring (with one or two anchors), Anchor dragging
- 3. Factors that effect the berthing and unberthing (with or without tugs)
- 4. Rules related with taking a pilot
- 5. Manoeuvres when man overboard
- 6. Manoeuvres in shallow waters, rivers and canals
- 7. Ship handling in heavy seas
- 8. Helicopter operations

d. Communications At Sea

- 1. Communication by using morse code
- 2. International code of signals
- 3. Radio - telephone communications
- 4. Radiotelex
- 5. GMDSS
- 6. Procedures related with reporting the emergencies

e. Ship Structure And Balance

- 1. Ship structure
- 2. Ship building materials
- 3. Wending techniques
- 4. Store curtains
- 5. Water proofed sections
- 6. Corrosion and corrosion protection

7. Surveys
8. Docking procedure
9. Forces and momentums
10. Displacement
11. Floation Force
12. Static stability
13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic Balance
17. Balance calculations in grain handling
18. Draft Survey
19. Cut - off Force and Curving momentum

f. Cargo- Handling And Stowage

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes
6. Refrigerant Cargoes
7. Cargo equipments and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology And Oceanography

1. Meteorological equipments and their usage
2. Elements of meteorology
 - a. Atmosphere. form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
3. Climatology. (Wind and pressure systems established on the oceans)
4. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
5. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for seafarers
 - b. Meteorological observations, recording and reporting
 - c. Meteorological estimations
6. Ocean waves
7. Streams
8. Waves
9. Knowledge of meteorological navigation

h. Safety At Sea

1. Planing of emergency situation
2. Precautions for the safe of personnel and passengers in the emergency situation.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipments
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
3. Search and rescue organisations (Mersar)

i. Maritime English

1. IMO standard Maritime Dictionary
2. Communication English
3. To understand the publications related with meteorology and safety at sea
4. To understand and to write English language navigational publications

j. Ship Engines

1. Main Engine
2. Diesel Engines
3. Steamed turbine systems
4. Propeller and shaft
5. Bridge control
6. Auxiliary Machineries
 - a. Boilers
 - b. Drinkable water production systems
 - c. Pumps
 - d. Steering Engine
 - e. Generator
 - f. Alternator and electric circuits
 - g. Refrigerating
 - h. Air conditioner and air conditioning
 - i. Balancers
 - j. Bilge-way separators and filters
 - k. Purifying
 - l. Garbage destroyer
 - m. Deck engines
 - n. Hydraulic systems
 - o. Ship- Engine Terminology's
 - p. Fuel expenditure

k. Maritime Law

1. International Maritime Conventions
2. SOLAS- 74, STCW - 78, ITU Radio Rules
3. MARPOL 73/78 international regulation related with pollution

4. Tonnage measuring
5. ILO Regulation and decisions
6. Port- entry certificates and procedures, International Health Rules
7. Law of safety of life and commodities at sea
8. Regulation about the quantity and quality of seafarers
9. Law of Cabotage
10. Related sections of Law of Charges
11. Maritime labour law
12. Regulation of coastal health
13. Law of sea- Robbery
14. Knowledge about the custom smuggling regulation
15. Related articles of Criminal Law
16. Ship definitions
17. Definition of master, his responsibilities and authority in public law, certificates and documents that will be kept on board, Certificate of registry, ship's journal, certificate of tonilato, Master's authority and authorities and duties of captain in the state of being guilty, contracts of affreightment , Bill of lading, Flag, Register of ship, seaworthiness, rights and responsibilities of the ship owners, sea accidents(collusions, avarias, Search and Rescue
18. Insurance - Marine Insurance, Club Insurance
19. Lawfulness side of taking a pilot to a ship

Ocean-going Master Examinations Topic Contents

Article 18. Oceangoing Master examination topic contents are shown below

a. Navigation

1. Knowledge of magnetic compass. Determining and application of a natural and artificial deviations, regulation of magnetic compass
2. Knowledge of gyro - compass - finding and applying gyro - compass error by terrestrial and celestial means
3. Knowledge of Chart projections
4. Knowledge of chart. Symbols and abbreviations, using the navigational charts, chart corrections and announcements for seafarers
5. Knowledge Of Coastal Navigation
 - a. Dead reckoning taking into account winds, tides and currents.
 - b. Ability to determine the ship's in every conditions
 - c. Ability to use navigational charts and publications
 - d. Aids to navigation including light- houses, beacons and buoys
6. Tides and knowledge of tides; by using the tidal rulers, ability to calculate tidal conditions
7. Knowledge of Celestial Navigation
 - a. Time concept
 - b. Knowledge of Nautical Almanac
 - c. Rising and setting times sun and the moon
 - d. Finding the position by solar observation
 - e. Finding the latitude in accordance with longitude of sun
 - f. Recognition of the star, finding the star, finding the position by observing the star
 - g. Finding the latitude and compass error by observing polaris
8. Life- boat Sailing

9. Electronic Navigational Equipment's. Recognising and using
 - a. Gyro- compass and repeaters
 - b. Auto- pilot
 - c. Dead- reckoning
 - d. Echo- sounders
 - e. Radio- Direction Finder
 - f. Hyperbolic Navigation Systems (Decca, Loran - C, Omega)
 - g. Satellite Navigation Systems (Satellite- GPS)
 - h. Radar and Radar piloting
 - i. ARPA Radar
 - j. NAVTEX
10. Navigation planning in all conditions
 - a. Navigation planning in coastal Navigation
 - b. In restricted water (Day and night)
 - c. In heavy traffic and traffic separation schemes
 - d. In restricted visibility conditions

b. Watch Keeping

1. Watch keeping regulations and methods
2. Regulations for preventing collisions at sea
3. Maintain a safe navigational watch
4. Maintain a safe anchoring watch
5. Maintain an effective and safe navigational watch in normal conditions
6. Maintain an effective and safe navigational watch while carrying a dangerous cargo
7. Preventing the pollution
 - a. Rules of MARPOL (73/78)
 - b. Precautions to be taken to prevent the pollution
 - c. Precautions to be taken following the pollution
 - d. An intervention methods in the case of pollution
 - e. Reporting the accidents

c. Ship-Handling

1. Turning circles and stopping distance
2. Anchoring (with one or two anchors), Anchor dragging
3. Factors that effect the berthing and unberthing (with or without tugs)
4. Rules related with taking a pilot
5. Manoeuvres when man overboard
6. Manoeuvres in shallow waters, rivers and canals
7. Ship handling in heavy seas
8. Helicopter operations

d. Communications At Sea

1. Communication by using morse code
2. International code of signals
3. Radio - telephone communications
4. Radiotelex
5. GMDSS
6. Procedures related with reporting the emergencies

e. Ship Structure And Balance

1. Ship structure
2. Ship building materials
3. Wending techniques
4. Store curtains
5. Water proofed sections
6. Corrosion and corrosion protection
7. Surveys
8. Docking procedure
9. Forces and momentums
10. Deplacement
11. Floation Force
12. Static stability
13. Starting stability
14. Stability curves
15. Free liquid effect
16. Dynamic Balance
17. Balance calculations in grain handling
18. Draft Survey
19. Cut - off Force and Curving momentum

f. Cargo-Handling And Stowage

1. Dry Cargoes
2. Preparations and inspections of stores for cargoes
3. Binding of the cargoes
4. Air- conditioning and inspections of the cargoes
5. Deck Cargoes
6. Refrigerant Cargoes
7. Cargo equipments and hatches
8. Dangerous cargoes
9. Grain carrying and IMO Rules
10. Timber cargoes
11. Maintenance and inspections of cargoes
12. Tankers, Tanker order, loading and discharging lines, pumpings and precautions.

g. Meteorology

1. Meteorological equipments and their usage
2. Elements of meteorology
 - a. Atmosphere, form and physical specifications
 - b. Atmospheric pressure
 - c. Wind
 - d. Clouds and precipitation
 - e. Visibility
3. Pressure Systems
 - a. Structure of pressure systems
 - b. Pressure systems established in Mediterranean
4. Meteorological reports and meteorological estimations
 - a. Meteorological information stations for seafarers
 - b. Meteorological observations, recording and reporting

- c. Meteorological estimations
- 5. Streams
- 6. Waves
- 7. Knowledge of meteorological navigation

h. Safety At Sea

- 1. Planing of emergency situation
- 2. Precautions for the safe of personnel and passengers in the emergency situation.
 - a. Precautions to be taken following a grounding
 - b. Precautions to be taken following a collusion
 - c. Precautions to be taken following a fire and explosion
 - d. Abandoning the ship
 - e. Usage of the spare - steer equipments
 - f. Towing and for being taken in tow
 - g. Rescue the personnel from the ship in danger or from the wrecked ship
 - h. To help a ship in danger
 - i. Man overboard
 - j. Precautions to be taken for 6the emergencies at port
- 3. Search and rescue organisations (Mersar)

i. Maritime English

- 1. IMO standard Maritime Dictionary
- 2. Communication English
- 3. To understand the publications related with meteorology and safety at sea
- 4. To understand and to write English language navigational publications

j. Ship Engines

- 1. Main Engine
- 2. Diesel Engines
- 3. Steamed turbine systems
- 4. Propeller and shaft
- 5. Bridge control
- 6. Auxiliary Machineries
 - a. Boilers
 - b. Drinkable water production systems
 - c. Pumps
 - d. Steering Engine
 - e. Generator
 - f. Alternator and electric circuits
 - g. Refrigerating
 - h. Air conditioner and air conditioning
 - i. Balancers
 - j. Bilge-way separators and filters
 - k. Purifying
 - l. Garbage destroyer
 - m. Deck engines
 - n. Hydraulic systems
 - o. Ship- Engine Terminology's
 - p. Fuel expenditure

k. Maritime Law

1. International Maritime Conventions
2. SOLAS- 74, STCW - 78, ITU Radio Rules
3. MARPOL 73/78 international regulation related with pollution
4. Tonnage measuring
5. ILO Regulation and decisions
6. Port- entry certificates and procedures, International Health Rules
7. Law of safety of life and commodities at sea
8. Regulation about the quantity and quality of seafarers
9. Law of Cabotage
10. Related sections of Law of Charges
11. Maritime labour law
12. Regulation of coastal health
13. Law of sea- Robbery
14. Knowledge about the custom smuggling regulation
15. Related articles of Criminal Law
16. Ship definitions
17. Definition of master, his responsibilities and authority in public law, certificates and documents that will be kept on board, Certificate of registry, ship's journal, certificate of tonilato. Master's authority and authorities and duties of captain in the state of being guilty, contracts of affreightment , Bill of lading, Flag, Register of ship, seaworthiness, rights and responsibilities of the ship owners, sea accidents(collusions, aviaries, Search and Rescue
18. Insurance - Marine Insurance. Club Insurance
19. Lawfulness side of taking a pilot to a ship

Donkeyman Examinations Topic Contents

Article 19. Donkeyman examination topic contents are shown below

a. Knowledge of Engine

1. Knowledge of Main and Auxiliary steam boilers, their structures and their duties
2. Operation of steam boilers, including combustion systems
3. The maintenance of boilers so as to be in good order and ready to use
4. Knowledge of maintenance, cleaning and repairing of the boiler
5. Knowledge of oil pipes and their forms
6. Preparing the diesel engine of the ship to a voyage, testing and handling in the voyage
7. Recognising the control devices that are used in diesel engines, such as bridge- gage, comperator , plastic- gage, thermometer, parometer , Pressure- gage, Vacuum gage, compound gage, Pmax , Indicator
8. Knowledge of all kinds of circuits that are in the Engine -Divisions of the engined ships, and ship circuits.

b. Knowledge Of Electricity

1. Knowledge of maintenance the direct current engine and generators
2. Knowledge of Alternating current engine and generators
3. Distribution tables, their duties and control and measure equipments
4. Maintenance of cables

5. Knowledge of the storage batteries, their sorts, and divisions
6. Knowledge of batteries, their usage and their connectings
7. Knowledge of emergency batteries, their usage and their reasons of being produced
8. Maintenance of the batteries
9. Knowledge of charging the batteries

c. Knowledge Of Profession

1. Knowledge of file, chisel, scrape and berth scrape
2. Recognising and using the various hand and electrical equipments
3. Electrical Arc Welding, OXI- acetylene welding brass welding , soft and hard solding
4. Iron marking, cutting of Binding and punching
5. Various hot and cold clenching
6. Cog extracting, screw plate, plate, piloting countersinking, iron hooping

Marine Technician Examinations Topic Contents

Article 20. Motorman examination topic contents are shown below

a. Diesel Engines And Operation

1. Basic operation principles of motors
2. Operation principles of four- stroke gasoline motors
3. Operation principles of two- stroke gasoline motors
4. Operation principles of four- stroke diesel motors
5. Operation principles of two- stroke diesel motors
6. Operation principles of direct current diesel engines (UNIFLOW)
7. Application of supercharge to ship diesel engines principles and usages
8. Sweeping methods
9. Mowing parts of diesel engines
10. Stationary parts of diesel engines
11. Pipelines of diesel engines (Fuel pipes, lubrication and cooling pipes, first movement pipes, exhaust pipe, air entrance pipe etc.)
12. Ordnance of first movement and stern-way's of diesel engines
13. Fuel pumping pipes and their parts
14. Operation , Maintenance and Repairing methods of diesel engines
15. Fire reasons, Fire fighting and various fire evtinguising systems

b. Knowledge Of Electricity

1. Definition of Direct Current and Alternating current
2. Motors
3. Generators
4. Cables
5. Distribution tables
6. Control Devices (ammeters, Voltmeters etc.)
7. Accumulators
8. Batteries
9. Emergency batteries
10. Battery charge circuits
11. Start circle

12. Firing circle

Marine Mechanic Technician Examinations Topic Contents

Article 21. Sea - Mechanic examination topic contents are shown below

a. Diesel Engines And Operations

1. Basic operation principles of motor
2. Operation principles of two and four stroke gasoline motors
3. Operation principles of two and four stroke diesel motors
4. Operation principles of semi - diesel engines
5. Operation principles of direct current diesel engines
6. Sweeping principles and sweeping types for diesel engines
7. Application of super charge to two and four stroke engines. Principles and types of super-charge
8. Moving parts of diesel engines, their duties, maintenance and repairing
9. Stationary parts of diesel engines, their duties, maintenance and repairing
10. Fuel pipes
11. Fuel- pumping methods
12. Fuel pumping pumps and valves. Their duties maintenance and repairing
13. Cooling pipes
14. Pressured air pipes
15. Lubricate pipes
16. First movement pipes
17. First movement methods
18. Valve movement mechanism
19. Exhaust and in take air pipes
20. Lubricate oils used in diesel motors and their specifications
21. Liquid fuels used in diesel motors and their specifications
22. Preparation for voyage, operation, checking during the voyage and shutting down the diesel engines
23. Maintenance of engines that will not be used for a long period of time
24. Maintenance and repair procedures of the diesel engines at certain intervals

b. Auxiliary Machinery And Systems

1. Joints and gaskets used at ships and the places where they are used
2. Main Engine Auxiliaries : Various pumps and valves
3. Deck Auxiliaries : Rope and anchor windlass, winches, cranes, steering gears, boat davits
4. Measurement equipment's. Thermometer, parometer , PMAX, DUAL GAGES, COMPARATOR
5. Ship pipes, Bilge-way pipe , balance pipe , fire pipe, heating pipe, fresh- water pipes, sea water pipes, health pipes etc.
6. Air- conditioning systems

c. Knowledge of Electricity

1. Tension distribution systems
2. Direct - current generators and motors
3. Emergency systems

4. Accumulators
5. Measurement equipment's
6. Distribution tables
7. Cables
8. Transformers

Engineer Officer Examinations Topic Contents (for Middle Voyage)

Article 22. Engineer officer examination topic contents are shown below

a. Ship Engines Operations And Maintenance

1. Steam boiler
 - a. Steam boiler's types and parts
 - b. Boiler heaters, types, duties, advantages and disadvantages
 - c. Air and draft systems of boiler
 - d. Firing- up the fire and water piped boilers
 - e. Turning off the boilers
 - f. Maintenance , cleaning and repairing procedures of boilers following the accidents
2. Steam Turbines
 - a. Types of ship steam turbines
 - b. Action, reaction and combined turbines
 - c. Moving and stationary parts of steam turbines
 - d. Preparation for voyage, operation, heating, manoeuvre specifications, checking during the voyage and shutting down of turbines
 - e. Things to be done at ports
 - f. Turbine defections and repairing procedures
 - g. Adjustment and control equipment's
 - h. Diesel Engines
 - i. Operation principles
 - j. Two and four stroke gasoline motors
 - k. Two and four stroke diesel motors
 - l. Direct current diesel motors
 - m. Semi diesel machineries
 - n. Scavenging types and methods
 - o. Over - filling types and applications
 - p. Moving parts of diesel motors
 - q. Stationary parts of diesel motors
 - r. Pipes of diesel machines
 - s. First movement and starn-way methods
 - t. Exhaust and air conditioning systems
 - u. Preparing, heating, operating, manoeuvring and shutting down of diesel motors
 - v. Measurement equipment's, used in diesel motors
4. Ship Auxiliary Machinery and Systems
 - a. Types of pumps used in diesel engined vessels and their operations, maintenance and repairings
 - b. Ropes, Iran capstans, various winches, cranes. used on deck, types of steer machines, their operations, maintenance and repairs
 - c. Valves used in ships, their structures, operation principles, maintenance and repairs

d. Types of joints and gaskets, and general knowledge about where they are used

b. Knowledge of Electricity

1. Electric Machines
2. Alternative current and their distribution systems
3. Direct current distribution systems
4. Generators and motors(d. c.)
5. Alternators and motors (a. c.)
6. Principles of releasing the direct current motors
7. Principles of changing directions in direct current motors
8. Moving and stationary parts of electric
9. Maintenance, failures and repairings of electric machines
10. Types of accumulators, their chargings and charge- circuits
11. Series and parallel connections of batteries
12. Periodical maintenance of batteries
13. Ohm law and applications
14. Connecting of the resistance
15. Calculations of series and parallel resistance
16. Cables
17. Transformers, their duties and types

c. Technical Drawings

Technical drawings and measurement of the simple motors, machine and boiler pieces in accordance with 1/1 or scaled.

d. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. pH and its measurement
4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiling water and experiments applied on boil- feeding water
7. Fuel and specifications
8. Experiments applied on fuels
9. Metals, alloys and other equipment's used in mostly in ships and their specifications

Second Engineer Officer Examinations Topic Contents (for Middle Voyage)

Article 23. Second Engineer officer examination topic contents are shown below

a. Operation And Maintenance Of Ship Machines

1. Steam boilers
 - a. Types of fire and water piped boilers and their operation principles
 - b. Parts that forming the boilers
 - c. Boiler equipment's
 - d. Boiler heaters and super heaters
 - e. Fuelling system of boilers
 - f. Pressure experiments in boilers
 - g. Firing -up the boilers, vaporisation , and operating the boilers
 - h. Boiler-water experiments
 - i. Boiling of the boiler
 - j. Crusting
 - k. Crusting prevention procedures
 - l. Maintenance of boilers
2. Steam Turbines
 - a. Prepa Types of action turbines, operation principles and the places where they are used
 - b. Types of reaction turbines, operation principles and the places where they are used
 - c. Combined turbines
 - d. Stern-way turbines
 - e. Compound turbines
 - f. Moving parts of turbines
 - g. Stationary parts of turbines
 - h. Turbine equipment's
 - i. Speed- adjustment equipment's
 - j. Preparing the turbines
 - k. Cracking of turbine keys and rotors
 - l. Balancing the turbine rotors
 - m. Critic speed
 - n. Turbine defections and their repairings
3. Diesel Motors
 - a. Two and four stroke concept
 - b. Two and four stroke gas motors
 - c. Two and four stroke diesel motors
 - d. Semi -diesel machines and the places where they are used, their gas-expenses and power limits
 - e. Scavenging concept, scavenging types their advantages and disadvantages
 - f. Over- filling, definition, advantages and disadvantages
 - g. Applications of super change on two and four stroke diesel machines
 - h. Moving parts of diesel motors
 - i. Stationary parts of diesel motors
 - j. Functional parts of diesel motors
 - k. Pipes of diesel motors
 - l. Methods of first- movement and stern-way

- m. ration for voyage , testing , moneveours, checking during the voyage and shutting down of diesel motors
- n. Maintenance and repairing methods of diesel motors
- o. Protection of the ship - engines that will not be used for a long period of time
- p. Measurement and control equipment's used in diesel machines

4. Gas-turbines

- a. Operation principles of gas turbines
- b. Knowledge of open- semi open and close gas turbines
- c. Moving parts of gas turbines
- d. Stationary parts of gas turbine
- e. General knowledge of first movement, oil, oiling and air pipes
- f. Operation, maintenance and repairing methods of gas turbines

b. Auxiliary Machinaries and Systems

1. Main machinery auxiliaries
2. Deck auxiliaries
3. Operation principles of various types of pumps
4. Pumps and the places where they are used
5. Principles of pump operation, maintenance and repair
6. Valves: stop, gate, glob, check, magnetic valves and their structures
7. Valve operation , maintenance and repair
8. Lukewarming of valves
9. Ship pipes- bilgeways, balast, sea-water, sweet water, health, cooling, inner gas pipes
10. Oily water separators
11. Incinerators
12. Types of joints and gaskets, and general knowledge about where they are used

c. Knowledge Of Electricity

1. Electric Machines
2. Alternative current and their distribution systems
3. Direct current distribution systems
4. Generators and motors(d.c.)
5. Alternators and motors (a.c.)
6. Principles of releasing the direct current motors
7. Principles of changing directions in direct current motors
8. Moving and stationary parts of electric machines
9. Maintenance, failure and repairing of electric machines
10. Types of accumulators, their chargings and charge- circuits
11. Series and parallel connections of batteries
12. Periodical maintenance of batteries
13. Ohm law and applications
14. Connecting of the resistance
15. Calculations of series and parallel resistance
16. Cables
17. Transformers, their duties and types

d. Technical Drawings

Technical drawings and measurement of the simple motors, machine and boiler pieces in accordance with 1/1 or scaled

- e. Vapour And Feeding Water Systems
 1. Open, semi -open and closed feeding water systems and their operating principles
 2. Function of the parts that from the feeding water pipes, their maintenance and repairs methods
 3. Condensers, hotwells , rejecter condensers, drain coolers, feeding water heaters
 4. Air pumps , Density pumps, boolster pumps, feeding water pumps

f. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. pH and its measurement
4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiling water and experiments applied on boil- feeding water
7. Fuels and specifications, experiments applied on fuels
8. Oils used in ships and their specifications experiment applied on oils
9. Metals, alloys and other equipment's used in mostly in ships and their specifications

Chief Engineer Class 4 Examinations Topic Contents (for Middle Voyage)

Article 24. Chief Engineer Class 4 examination topic contents are shown below

a. Operation And Maintenance Of Ship Machines

1. Steam boilers
 - a. Types of fire and water piped boilers and their operation principles
 - b. Parts that forming the boilers
 - c. Boiler equipment's
 - d. Boiler heaters and super heaters
 - e. Fuelling system of boilers
 - f. Pressure experiments in boilers
 - g. Firing -up the boilers, vaporisation , and operating the boilers
 - h. Boiler-water experiments
 - i. Boiling of the boiler
 - j. Have boiler boiled

- k. Crusting
 - l. Crusting prevention procedures
 - m. Protection of the boilers
2. Steam Turbines
- a. Types of action turbines, operation principles and the places where they are used
 - b. Types of reaction turbines, operation principles and the places where they are used
 - c. Combined turbines
 - d. Stern-way turbines
 - e. Compound turbines
 - f. Moving parts of turbines
 - g. Stationary parts of turbines
 - h. Speed- adjustment equipment's
 - i. Preparing the turbines for a voyage
 - j. Cracking of turbine keys and rotors
 - k. Balancing the turbine rotors
 - l. Critic speed
 - m. Turbine defections and their repairings
3. Diesel Motors
- a. Two and four stroke concept
 - b. Two and four stroke gas motors
 - c. Two and four stroke diesel motors
 - d. Semi -diesel machines and the places where they are used, their gas-expenses and power limits
 - e. Scavenging concept, scavenging types their advantages and disadvantages
 - f. Over- filling, definition, advantages and disadvantages
 - g. Applications of super charge on two and four stroke diesel machines
 - h. Moving parts of diesel motors
 - i. Stationary parts of diesel motors
 - j. Functional parts of diesel motors
 - k. Pipes of diesel motors
 - l. Preparation for voyage , testing , moneveours. checking during the voyage and shutting down of diesel motors
 - m. Maintenance and repairing methods of diesel motors
 - n. Protection of the ship - engines that will not be used for a long period of time
 - o. Measurement and control equipment's used in diesel machines
4. Gas-turbines
- a. Operation principles of gas turbines
 - b. Knowledge of open- semi open and close gas turbines
 - c. Moving parts of gas turbines
 - d. Stationary parts of gas turbine
 - e. General knowledge of first movement, oil, oiling and air pipes
 - f. Operation. maintenance and repairing methods of gas turbines

b. Auxiliary Machinaries and Systems

- 1. Main machinery auxiliaries
- 2. Deck auxiliaries
- 3. Operation principles of various types of pumps
- 4. Pumps and the places where they are used
- 5. Principles of pump operation, maintenance and repair

6. Valves: stop, gate, glob, check, magnetic valves and their structures
7. Valve operation , maintenance and repair
8. Lukewarming of valves
9. Ship pipes- bilgeways, ballast, sea-water, sweet water, health, cooling, inner gas pipes
10. Oily water separators
11. Incinerators
12. Types of joints and gaskets, and general knowledge about where they are used
13. Ropes and iron capstans, various, winches, cranes used on deck, steer machines their operations maintenance and repairs

c . Knowledge Of Electricity

1. Tension distribution used in ships
2. Definitions of direct current (d. c.) and alternative current (A.c.)
3. Emergency systems, used in ships
4. Types of direct current generators and the places where they are used
5. Direct current motors, types and places where they are used
6. Mobile and immobile parts of electric machines
7. Maintenance, deflections and repairing methods of electric machines
8. Accumulators :Accumulators with acid and alkali, charging of accumulators and types of charging circuits
9. Connecting of the accumulators in various ways
10. Cables, their structure , and important points in setting them in ship
11. Cable isolation resistance , weakness reasons of isolations, measuring of isolation resistance
12. Measurement and control equipment's
13. Transformers, their duties and types
14. OHM LAW, its application, simple calculations related with series and parallel resistance

d. Vapour And Feeding Water Systems

1. Open, semi -open and closed feeding water systems and their operating principles
2. Function of the parts that form the feeding water pipes, their maintenance and repairs methods
3. Condensers, hotwells , rejecter condensers, drain collers, feeding water heaters
4. Air pumps, density pumps, booster pumps, feeding water pumps

e. Technical Drawings

Technical drawings and measurement of the simple motors, machine and boiler pieces in accordance with 1/1 or scaled.

f. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. PH and its measurement
4. Corrosion

- a. Basic periods of corrosion
- b. Corrosion events, met in ships
- c. Controlling the corrosion
- d. Cotadic protection
- 5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
- 6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiling water and experiments applied on boil- feeding water
- 7. Fuels and specifications Experiment applied on fuels
- 8. Oils used in ships and their specifications experiment applied on oils
- 9. Metals, alloys and other equipment's used in mostly in ships and their specifications

Chief Engineer Class 3 Examinations Topic Contents (for Middle Voyage)

Article 25. Chief Engineer Class 3 examination topic contents are shown below

a. Operation And Maintenance Of Ship Machines

- 1. Steam boilers
 - a. Types of boilers used in trade ships
 - b. Main and auxiliary boilers used in trade ships
 - c. Boiler equipment's
 - d. Heaters, used in boilers
 - e. Fuel systems of boilers
 - f. Pressure experiments applied on boilers
 - g. Firing -up the boiler, working by fuel-oil, by water, keeping steam, taking the boiler in to operation
 - h. Collapse of stoke hole, reasons and precautions
 - i. Boiling the boiler
 - j. Crast forming, prevention of crast
 - k. Having the boilers boiled
 - l. Cancelling of the boiler pipes, changing the boiler pipes
 - m. Cleaning , maintenance and preparation for survey of the boilers following taking them out
 - n. Protection of the boilers that will not be used for a long period of time
- 2. Steam Turbines
 - a. Action turbine principle. Types of action turbines and the places where they are used
 - b. Reaction turbine principle, types of reaction turbines and the places where they are used
 - c. Stern-way turbines, reasons of being used, their places, powers and types
 - d. Combined turbines, reasons of being used, and the places where they are used
 - e. Compound turbines
 - f. Moving and stationary parts of stream turbines
 - g. Turbine valves, reasons of being used, and the places where they are used
 - h. Preparation for voyage, operation, heating manouver specifications, checking during the voyage and shutting down of the stream boilers
 - i. Things to be done when ship is at port

- j. Maintenance of turbines, possible defections and repairing
 - k. Measure and control devices used in turbines
3. Diesel Motors
- a. Types of diesel motors used in merchant vessels
 - b. Two and four stroke concept
 - c. Two and four stroke gas motors
 - d. Two and four stroke diesel motors
 - e. Semi -diesel machines and the places where they are used, their gas-expenses and power limits, advantages and disadvantages
 - f. Sweeping concept, types, their advantages and disadvantages
 - g. Reverse and direct current sweeping types
 - h. Over- filling, or types of supercharge, their applications on two and four stroke machines, their advantages and disadvantages
 - i. Moving parts of the diesel machines
 - j. Stationary parts that are forming the structure of diesel motors
 - k. Various pipes that are used in diesel machines, their parts and their duties
 - l. First - movement and stern-way methods of diesel machines forward- movement equipment's
 - m. Preparation for voyage, testing manoeuvres, checking during the voyage and shutting down of the diesel motor
 - n. Various measurement and control devices that are used in maintaining the diesel machines

4. Gas-turbines

- a. Operation principles of gas turbines
- b. Gas turbines that are used in ships
- c. Open- semi open , closed gas turbines
- d. Moving parts of gas turbines
- e. Stationary parts of gas turbines
- f. Maintenance operation and repairing methods of gas turbines
- g. Pipes of gas turbines

b. Auxiliary Machineries And Systems

- 1. Main machinery auxiliaries
- 2. Deck auxiliaries
- 3. Service machines
- 4. Various pumps operation principles
- 5. Various pumps and the places where they are used
- 6. Operations, maintenance and repairing methods of pumps
- 7. Stop valves, gate valves, globe valves, check valves, globe check valves, magnetic valves, etc. Their structure and the places where they are used
- 8. Valve operation , maintenance and repair
- 9. Lukewarming of valves
- 10. Ship pipes- bilgeways, ballast, sea-water, sweet water pipes, heating pipes, cooling pipes, fire pipes, inner gas pipes etc.
- 11. Oily water separators
- 12. Incinerators, functions, structure and purpose
- 13. Types of joints and gaskets, functions, structure and purpose
- 14. Ropes and iron capstans, various winches, cranes, steering machines and steering equipment's

c. Electrotechnology

1. Direct current distribution systems
2. Alternative tension distribution systems
3. Emergency generators
4. Emergency batteries
5. Cables and calculations of cable crosscuts
6. Important points in setting the cables
7. Maintenance of cables
8. Reasons of cable leakage, isolation resistance and their measurements
9. Direct current generators, their types and the places where they are used
10. Alternative current generators, their types and the places where they are used
11. Direct current motors, their types and the places where they are used
12. Alternative current motors, their types and the places where they are used
13. Moving and stationary parts of electric machines, Methods of maintenance and repairing and their duties
14. Accumulators, places where they are used and types
15. Charging the batteries, numerical values of current and tensions used for charging and charge circuits
16. Parts of the batteries and maintenance principles
17. Series and parallel connections, series - parallel connections of batteries and conditions that are looked for in these kinds of connections
18. Ohm Law, measurement of resistance, current and tension
19. Series and parallel connections, series- parallel connections of resistance
20. Transformers, their duties and types

d. Technical Drawings

Technical drawings and measurement of the ship engine parts from three sides in accordance with 1/1 or scaled

e. Vapour And Feeding Water Systems

1. Definitions of vapour and feeding water systems. Their purposes, advantages and disadvantages
2. Types of vapour and feeding water systems and the places where they are used
3. Open, semi open, closed, pressured, vacuumed feeding water systems and their explanations
4. Functions, maintenance and repairing methods of feeding water pipes
5. Detailed knowledge about condensators, airpumps, hot- wells rejector, rejector condensators, drain cooler, feed- heater, feeding waterpumps, traps, dense pumps, hidden pipes, vacuum tanks, vacuum and air cells
6. Types of evaporator, reasons of being used, their boilings, maintenance methods

f. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. PH and its measurement

4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiling feeding water
7. Fuels and specifications Experiment applied on fuels
8. Oils used in ships and their specifications experiment applied on oils
9. Metals, alloys and other equipment's used in mostly in ships and their specifications

Chief Engineer Class 2 Examinations Topic Contents (for Middle Voyage)

Article 26. Chief Engineer Class 2 examination topic contents are shown below

a. Operation And Maintenance Of Ship Machines

1. Steam boilers
 - a. Types of boilers used in trade ships
 - b. Main and auxiliary boilers used in trade ships
 - c. Boiler equipment's
 - d. Heaters, used in boilers
 - e. Fuel systems of boilers
 - f. Pressure experiments applied on boilers
 - g. Firing -up the boiler, working by fuel-oil, by water, keeping steam, taking the boiler in to operation
 - h. Collapse of stoke hole, reasons and precautions
 - i. Boiling the boiler
 - j. Crast forming, prevention of crast
 - k. Having the boilers boiled
 - l. Cancelling of the boiler pipes pipes, changing the boiler pipes
 - m. Cleaning , maintenance and preparation for survey of the boilers following taking them out
 - n. Protection of the boilers that will not be used for a long period of time
2. Steam Turbines
 - a. Action turbine principle, Types of action turbines and the places where they are used
 - b. Reaction turbine principle, types of reaction turbines and the places where they are used
 - c. Stern-way turbines, reasons of being used, their places, powers and types
 - d. Combined turbines, reasons of being used, and the places where they are used
 - e. Compound turbines
 - f. Moving and stationary parts of stream turbines
 - g. Turbine valves, reasons of being used, and the places where they are used
 - h. Preparation for voyage, operation, heating manoeuvre specifications, checking during the voyage and shutting down of the stream boilers

- i. Things to be done when ship is at port
 - j. Maintenance of turbines, possible deflections and repairing
 - k. Measure and control devices used in turbines
3. Diesel Motors
- a. Types of diesel motors used in merchant vessels
 - b. Two and four stroke concept
 - c. Two and four stroke gas motors
 - d. Two and four stroke diesel motors
 - e. Semi -diesel machines and the places where they are used, their gas-expenses and power limits, advantages and disadvantages
 - f. Sweeping concept, types, their advantages and disadvantages
 - g. Reverse and direct current sweeping types
 - h. Over- filling, or types of supercharge, their applications on two and four stroke machines, their advantages and disadvantages
 - i. Moving parts of the diesel machines
 - j. Stationary parts that are forming the structure of diesel motors
 - k. Various pipes that are used in diesel machines, their parts and their duties
 - l. First - movement and stern-way methods of diesel machines forward- movement equipment's
 - m. Preparation for voyage, testing manoeuvres, checking during the voyage and shutting down of the diesel motor
 - n. Various measurement and control devices that are used in maintaining the diesel machines
4. Gas-turbines
- a. Operation principles of gas turbines
 - b. Gas turbines that are used in ships
 - c. Open- semi open , closed gas turbines
 - d. Moving parts of gas turbines
 - e. Stationary parts of gas turbines
 - f. Maintenance operation and repairing methods of gas turbines
 - g. Pipes of gas turbines

b. Auxiliary Machineries And Systems

1. Main machinery auxiliaries
2. Deck auxiliaries
3. Service machines
4. Various pumps operation principles
5. Various pumps and the places where they are used
6. Operations, maintenance and repairing methods of pumps
7. Stop valves, gate valves, globe valves, check valves, globe check valves, magnetic valves, etc. Their structure and the places where they are used
8. Valve operation , maintenance and repair
9. Lukewarming of valves
10. Ship pipes- bilge ways, ballast, sea-water, sweet water pipes, health pipes, cooling pipes, fire pipes, inner gas pipes etc.
11. Oily water separators
12. Insulators, functions, structure and purpose
13. Types of joints and gaskets, functions, structure and purpose
14. Ropes and iron capstans, various winches, cranes, steer machines and steer equipment's

c. Electrotechnology

1. Direct current distribution systems
2. Alternative tension distribution systems
3. Emergency generators
4. Emergency batteries
5. Cables and calculations of cable crosscuts
6. Important points in setting the cables
7. Maintenance of cables
8. Reasons of cable leakage, isolation resistance and their measurements
9. Direct current generators, their types and the places where they are used
10. Alternative current generators, their types and the places where they are used
11. Direct current motors, their types and the places where they are used
12. Alternative current motors, their types and the places where they are used
13. Moving and stationary parts of electric machines, Methods of maintenance and repairing and their duties
14. Accumulators, places where they are used and types
15. Charging the batteries, numerical values of current and tensions used for charging and charge circuits
16. Parts of the batteries and maintenance principles
17. Series and parallel connections, series - parallel connections of batteries and conditions that are looked for in these kinds of connections
18. Ohm Law, measurement of resistance, current and tension
19. Series and parallel connections, series- parallel connections of resistance
20. Transformers, their duties and types

d. Technical Drawings

Technical drawings and measurement of the ship engine parts from three sides in accordance with 1/1 or scaled.

e. Vapour And Feeding Water Systems

1. Definitions of vapour and feeding water systems. Their purposes, advantages and disadvantages
2. Types of vapour and feeding water systems and the places where they are used
3. Open, semi open, closed, pressured, vacuumed feeding water systems and their explanations
4. Functions, maintenance and repairing methods of feeding water pipes
5. Detailed knowledge about condensators, airpumps, hot- wells rejector, rejector condensators, drain cooler, feed- heater, feeding waterpumps, traps, dense pumps, hidden pipes, vacuum tanks, vacuum and air cells
6. Types of evaporator, reasons of being used, their boilings, maintenance methods

f. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases

- b. PH and its measurement
- 4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
- 5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
- 6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiling feeding water
- 7. Fuels and specifications Experiment applied on fuels
- 8. Oils used in ships and their specifications experiment applied on oils

Chief Engineer Class 1 Examinations Topic Contents (for Middle Voyage)

Article 27. Chief Engineer Class 1 examination topic contents are shown below

a. Operation And Maintenance Of Ship Machines

- 1. Steam boilers
 - a. Types of boilers used in trade ships
 - b. Main and auxiliary boilers used in trade ships
 - c. Boiler equipment's
 - d. Heaters, used in boilers
 - e. Fuel systems of boilers
 - f. Pressure experiments applied on boilers
 - g. Firing -up the boiler, working by fuel-oil, by water, keeping steam, taking the boiler in to operation
 - h. Collapse of stoke hole, reasons and precautions
 - i. Boiling the boiler
 - j. Crast forming, prevention of crast
 - k. Having the boilers boiled
 - l. Cancelling of the boiler pipes pipes, changing the boiler pipes
 - m. Cleaning . maintenance and preparation for survey of the boilers following taking them out
 - n. Protection of the boilers that will not be used for a long period of time
- 2. Steam Turbines
 - a. Action turbine principle, Types of action turbines and the places where they are used
 - b. Reaction turbine principle, types of reaction turbines and the places where they are used
 - c. Stern-way turbines, reasons of being used, their places, powers and types
 - d. Combined turbines, reasons of being used, and the places where they are used
 - e. Compound turbines
 - f. Moving and stationary parts of stream turbines
 - g. Turbine valves, reasons of being used, and the places where they are used
 - h. Preparation for voyage, operation, heating manoeuvre specifications, checking during the voyage and shutting down of the stream boilers

- i. Things to be done when ship is at port
- j. Maintenance of turbines, possible deflections and repairing
- k. Measure and control devices used in turbines

3. Diesel Motors

- a. Types of diesel motors used in merchant vessels
- b. Two and four stroke concept
- c. Two and four stroke gas motors
- d. Two and four stroke diesel motors
- e. Semi-diesel machines and the places where they are used, their gas-expenses and power limits, advantages and disadvantages
- f. Sweeping concept, types, their advantages and disadvantages
- g. Reverse and direct current sweeping types
- h. Over-filling, or types of supercharge, their applications on two and four stroke machines, their advantages and disadvantages
- i. Moving parts of the diesel machines
- j. Stationary parts that are forming the structure of diesel motors
- k. Various pipes that are used in diesel machines, their parts and their duties
- l. First - movement and stern-way methods of diesel machines forward- movement equipment's
- m. Preparation for voyage, testing manoeuvres, checking during the voyage and shutting down of the diesel motor
- n. Various measurement and control devices that are used in maintaining the diesel machines

4. Gas-turbines

- a. Operation principles of gas turbines
- b. Gas turbines that are used in ships
- c. Open- semi open , closed gas turbines
- d. Moving parts of gas turbines
- e. Stationary parts of gas turbines
- f. Maintenance operation and repairing methods of gas turbines
- g. Pipes of gas turbines

b. Auxiliary Machineries And Systems

- 1. Main machinery auxiliaries
- 2. Deck auxiliaries
- 3. Service machines
- 4. Various pumps operation principles
- 5. Various pumps and the places where they are used
- 6. Operations, maintenance and repairing methods of pumps
- 7. Stop valves, gate valves, globe valves, check valves, globe check valves, magnetic valves, etc. Their structure and the places where they are used
- 8. Valve operation , maintenance and repair
- 9. Lukewarming of valves
- 10. Ship pipes- bilgeways, ballast, sea-water, sweet water pipes, health pipes, cooling pipes, fire pipes, inner gas pipes etc.
- 11. Oily water separators
- 12. Incinerators, functions, structure and purpose
- 13. Types of joints and gaskets, functions, structure and purpose
- 14. Ropes and iron capstans, various winches, cranes, steer machines and steer equipment's

c. Electrotechnology

1. Direct current distribution systems
2. Alternative tension distribution systems
3. Emergency generators
4. Emergency batteries
5. Cables and calculations of cable crosscuts
6. Important points in setting the cables
7. Maintenance of cables
8. Reasons of cable leakage, isolation resistance and their measurements
9. Direct current generators, their types and the places where they are used
10. Alternative current generators, their types and the places where they are used
11. Direct current motors, their types and the places where they are used
12. Alternative current motors, their types and the places where they are used
13. Moving and stationary parts of electric machines, Methods of maintenance and repairing and their duties
14. Accumulators, places where they are used and types
15. Charging the batteries, numerical values of current and tensions used for charging and charge circuits
16. Parts of the batteries and maintenance principles
17. Series and parallel connections, series - parallel connections of batteries and conditions that are looked for in these kinds of connections
18. Ohm Law, measurement of resistance, current and tension
19. Series and parallel connections, series- parallel connections of resistance
20. Transformers, their duties and types

d. Technical Drawings

Technical drawings and measurement of the ship engine parts from three sides in accordance with 1/1 or scaled

e. Vapour And Feeding Water Systems

1. Definitions of vapour and feeding water systems. Their purposes, advantages and disadvantages
2. Types of vapour and feeding water systems and the places where they are used
3. Open, semi open, closed, pressured, vacuumed feeding water systems and their explanations
4. Functions, maintenance and repairing methods of feeding water pipes
5. Detailed knowledge about condensators, airpumps, hot- vells rejector, rejector condensators, drain cooler, feed- heater, feeding waterpumps, traps, dense pumps, hidden pipes, vacuum tanks, vacuum and air cells
6. Types of evaporator, reasons of being used, their boilings, maintenance methods

f. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases

- a. Strength and weakness of acids and bases
- b. PH and its measurement
4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiling feeding water
7. Fuels and specifications Experiment applied on fuels
8. Oils used in ships and their specifications experiment applied on oils
9. Metals, alloys and other equipment's used in mostly in ships and their specifications

Restricted Engineer Examinations Topic Contents (for Middle Voyage)

Article 28. Restricted Engineer Officer examination topic contents are shown below

a. Diesel Engine Incitement Systems

1. Types of diesel motors
2. Two and four stroke machines
3. Timing diagrams
4. Theoretical and true P - V diagrams
5. Advantages and disadvantages of crank- pistoned engines
6. Advantages and disadvantages of one or two stroke machines
7. Scavenging and types of scavenging , sweeping air pumps in diesel motors
8. Supercharge , types and advantages, aplication of supercharge and two or four stroke machines
9. Moving and stationary parts of diesel motors
10. Cooling and lubricating, oil - splashing, Entrance air, sweeping air, firs movement air and exhaust pipes of diesel motors
11. Using the dash- heating, Exhaust gas boilers
12. Valve movement mechanisim
13. Regulators and regulators equipment's
14. Indicator devices, indicator diagrams, maximum pressure measurer
15. First movement and stern- way methods
16. Preparing the diesel motors to a voyage, first movement, checking at voyage , and shutting down
17. Maintenance procedures of diesel motors certain periods
18. Protection of the machines that will not be used for a long period of time
19. Gas Expenses of diesel motors and power measurements and types of power

b. Electrotechnology

1. Direct Current (dc), Alternative current (a. c.) Electro- motor power, opposite electro - motor power, conductivity , insulators, capacitance, induction coil, Electro- mayonet, tension, current, Power, resistance
2. Direct current generators motors
3. Alternative current generators and motors
4. Types of accumulators, charge, discharge
5. Parallel connections of electric- generators
6. Connections of batteries in various ways, reasons and important points in connecting
7. Ohm and KIRSHOFF laws and numerical examples related with them
8. Various measurement devices and current connecting methods
9. Transformers, types and duties
10. Rectifier
11. Heating effect of electric energy, electrical heaters and questions related with them.
12. Cables

c. Ship Building

1. Wet surface, block coefficient, middle crosscut-coefficient, prismatic- coefficient, waterline field, depth- coefficient.
2. Tons per unit immersion.
3. Application of Simpson's first rule on nongeometrical fields and tonnage.
4. Ship-building terminology.
5. Structure elements of steel ships and their simple drawings.
6. Engine and boiler beds.
7. Watertight bulkheads and hatchways.
8. Hatchways.
9. Bow-thruster.
10. Double-bottom tanks, cofferdams suspension tanks, trim tanks, precautions before getting into the empty tanks.
11. Sedervalli balsam hives.
12. Basic knowledge about propeller, twist, visible sliding, or slip, real slip, trace and push.
13. Loyd, procedures, duties.
14. Dead-weight ton, gross ton, netton, rusam ton and their definitions.
15. Horse power and reduction in horse power.

d. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. pH and its measurement
4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion

- d. Cathodic protection
- 5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
- 6. Fresh -water boiler feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiler feeding water
- 7. Fuels and specifications Experiment applied on fuels
- 8. Oils used in ships and their specifications experiment applied on oils
- 9. Metals, alloys and other equipment's used in mostly in ships and their specifications

e. Steam Boilers

1. Steam and steam types.
2. Types of boilers.
3. Forms of fire-tubed boilers.
4. Boiler-heaters and superheaters.
5. Steam boiler equipment.
6. Fuel systems and equipment of boilers.
7. Fuel desolator in boilers and their types.
8. Preparing the boilers and their settings and operations.
9. Productivity of boilers, steam productions and gas expenses.
10. Setting off the boilers, cleaning and maintenance.
11. Boiler blowing, having the boiler blown.
12. Crust forming and prevention of crust.
13. Types of corrosion, preventing the corrosion, correction of the boiler water.
14. Boiler water experiments.

f. Steam Turbines

1. Types of the steam turbines.
2. Action and reaction turbines.
3. Compound turbines, stern-way turbines.
4. Moving and stationary parts of turbines.
5. Throat glands and gland-waterproof systems.
6. Nozzles.
7. Turbine equipment, cogwheeled equipment to reduce the overturning, flexible couplings.
8. Turbine valves.
9. Lubricating oil systems.
10. Preparing of the steam turbines, first movements, manoeuvres, checking during the voyage and shutting.
11. Procedures to be done at port.
12. Opening the turbine upper-case and checking.
13. Opening the turbine rotor and inspection.
14. Possible deflections of turbines.
15. Steam expenses of turbines, powers, gas calculations, Hs and TS diagrams and their usage.
16. Sailing with HP and LP turbines only.
17. Static and dynamic balance in Turbines.

g. Technical Drawings

1. Drawing of all types of machines and boiler parts, heaters and coolers from three sides.

2. Crossing, drawing of crosscuts, searching procedures.
3. Measurement, surface process signs, determining the tolerances.
4. Welded, riveted, screw, tree nail and stud connections and their drawings.
5. Prism, cone and their openings.
6. Drawing of cylindrical and conic.

h. Thermo-Dynamic

1. Basic gas laws.
2. Gas mixtures, and the pressure and heating of the mixture.
3. Defining the first and the second laws of thermo-dynamic by giving examples.
4. Carnot cycle and its efficiency.
5. Diesel, Otto cycle and their efficiency.
6. Theoretical mean pressure, indicated mean pressure, indicated thermal efficiency and numerical problems related with them, brake horse power, friction horse power.
7. Mechanic, hydraulic, and electrical brakes.
8. Specific fuel consumption and solving the numerical problems related with them.
9. Types of steam turbines velocity-pressure diagrams, steam and power calculations.
10. Reciprocating, their function principles and their cycles.
11. Gas turbine cycle. Jul and Brayton Cycle.
12. Steam engines cycle.
13. Measurement of power and theoretical mean pressure in steam machines and real mean pressure.
14. Using the Molier diagrams (h-s and T-S) for steam and solving the numerical problems related with these diagrams.

Restricted Second Engineer Officer Examinations Topic Contents (for Middle Voyage)

Article 29. Restricted second engineer officer examination topic contents are shown below.

a. Diesel Engine Driven Systems

1. Types of diesel motors.
2. Two and four stroke machines.
3. Trimmings diagrams.
4. Theoretical and real P-V diagrams.
5. Crank-pistoned crosshead machines, advantages and disadvantages.
6. One or two stroke machines, advantages and disadvantages.
7. Scavenging in diesel machines, types of scavenging, blowers.
8. Supercharge, types and advantages, supercharge applications on two and four stroke machines.
9. Moving and stationary parts of diesel motors.
10. Cooling, lubricating, injection, intake air, scavangil air, starter air and exhaust pipes of diesel motors.
11. Using the ejected air, exhaust gas boilers.
12. Valve movement mechanism.
13. Regulators and regulator equipment.
14. Indicators, indicator diagrams, maximum pressure measurers.
15. Starter and stern-way methods.

16. Preparing the diesel motors to a voyage, starter, checking during the voyage, shutting.
17. Maintenance procedures of diesel motors in certain periods.
18. Protection of the machines that will not be used for a long period of time.
19. Fuel expenses, power calculations, power types of diesel motors.

b. Electro Technology

1. Direct Current (dc), Alternative current (a. c.) Electro- motor power, opposite electro - motor power, conductivity , insulators, capacitance, induction coil, Electro- mayonet, tension, current, Power, resistance
2. Direct current generators motors
3. Alternative current generators and motors
4. Types of accumulators, charge, discharge
5. Parallel connections of electric- generators
6. Connections of batteries in various ways, reasons and important points in connecting
7. Ohm and KIRSHOFF laws and numerical examples related with them
8. Various measurement devices and current connecting methods
9. Transformers, types and duties
10. Rectifier
11. Heating effect of electric energy, electrical heaters and questions related with them.

c. Ship Building

1. Wet surface, block coefficient, middle crosscut-coefficient, prismatic- coefficient, waterline field, depth- coefficient.
2. Tons per unit immersion.
3. Application of Simpson's first rule on nongeometrical fields and tonnage.
4. Ship-building terminology.
5. Structure elements of steel ships and their simple drawings.
6. Engine and boiler beds.
7. Watertight bulkheads and hatchways.
8. Hatchways.
9. Bowthruster.
10. Double-bottom tanks, cofferdams suspension tanks, trim tanks, precautions before getting into the empty tanks.
11. Sedervalli balsam hives.
12. Basic knowledge about propeller, twist, visible sliding, or slip, real slip, trace and push.
13. Loyd, procedures, duties.
14. Dead-weight ton, gross ton, netton, rusam ton and their definitions.
15. Horse power and reduction in horse power.

d. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. pH and its measurement
4. Corrosion

- a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
 6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiling feeding water
 7. Fuels and specifications Experiment applied on fuels
 8. Oils used in ships and their specifications experiment applied on oils
 9. Metals, alloys and other equipment's used in mostly in ships and their specifications

e. Steam Boilers

1. Steam and steam types.
2. Types of boilers.
3. Forms of fire-piped boilers.
4. Boil-heaters and dissuperheaters.
5. Steam boilers equipment.
6. Fuel systems and equipment of boilers.
7. Funnel desolation in boilers and their types.
8. Preparing the boilers and their settings and operations.
9. Productivity of boilers, steam productions and gas expenses.
10. Setting off the boilers, cleaning and maintenance.
11. Boiler boiling, having the boiler boiled.
12. Crast forming and prevention of crast.
13. Types of corrosion, preventing the corrosion, correction of the boiler water.
14. Boiler water experiments.

f. Steam Turbines

1. Types of the steam turbines.
2. Action and reaction turbines.
3. Compound turbines, stern-way turbines.
4. Moving and stationary parts of turbines.
5. Throat glands and gland-waterproof systems.
6. Nozzles.
7. Turbine equipment, cogwheeled equipment to reduce the overturning, flexible couplings.
8. Turbine valves.
9. Lubricating oil systems.
10. Preparing of the steam turbines, first movements, maneveours, checking during the voyage and shutting.
11. Procedures to be done at port.
12. Opening the turbine upper-case and checking.
13. Opening the turbine rotor and inspection.
14. Possible defections of turbines.
15. Steam expenses of turbines, powers, gas calculations, Hs and TS diagrams and their usage.
16. Sailing with HP and LP turbines only.
17. Static and dynamic balance in Turbines.

g. Technical Drawings

1. Drawing of all types of machines and boiler parts, heaters and coolers from three sides.
2. Crossing, drawing of crosscuts, searching procedures.
3. Measurement, surface process signs, determining the tolerances.
4. Welded, riveted, screw, tree nail and stud connections and their drawings.
5. Prism, cone and their openings.
6. Drawing of cylindiric and conic.

h. Thermo-Dynamic

1. Basic gas laws.
2. Gas mixtures, and the pressure and heating of the mixture.
3. Defining the first and the second laws of thermo-dynamic by giving examples.
4. Carnot cycle and its efficiency.
5. Diesel, Otto cycle and their efficiency.
6. Theoretical mean pressure, indicated mean pressure, indicated thermal efficiency and numerical problems related with them, brake horse power, friction horse power.
7. Mechanic, hydraulic, and electrical brakes.
8. Specific fuel consumption and solving the numerical problems related with them.
9. Types of steam turbines velocity-pressure diagrams, steam and power calculations.
10. Reciprocating, their function principles and their cycles.
11. Gas turbine cycle. Jul and Brayton Cycle.
12. Steam engines cycle.
13. Measurement of power and theoretical mean pressure in steam machines and real mean pressure.
14. Using the Molier diagrams (h-s and T-S) for steam and solving the numerical problems related with these diagrams.

Restricted Chief Engineer Examinations Topic Contents (for Middle Voyage)

Article 30. Restricted Engineer Officer examination contents are shown below.

a. Diesel Engine Driven Systems

1. Types of diesel motors.
2. Two and four stroke machines.
3. Trimmings diagrams.
4. Theoretical and real P-V diagrams.
5. Crank-pistoned crosshead machines, advantages and disadvantages.
6. One or two stroke machines, advantages and disadvantages.
7. Scavenging in diesel machines, types of scavenging, blowers.
8. Supercharge, types and advantages, supercharge applications on two and four stroke machines.
9. Moving and stationary parts of diesel motors.
10. Cooling, lubricating, injection, intake air, scavangil air, starter air and exhaust pipes of diesel motors.
11. Using the ejected air, exhaust gas boilers.
12. Valve movement mechanism.
13. Regulators and regulator equipment.

14. Indicators, indicator diagrams, maximum pressure measurers.
15. Starter and stern-way methods.
16. Preparing the diesel motors to a voyage, starter, checking during the voyage, shutting.
17. Maintenance procedures of diesel motors in certain periods.
18. Protection of the machines that will not be used for a long period of time.
19. Fuel expenses, power calculations, power types of diesel motors.

b. Electro Technology

Direct Current (dc), Alternative current (a. c.) Electro- motor power, opposite electro - motor power, conductivity , insulators, capacitance, induction coil, Electro- magnet, tension, current, Power, resistance

1. Direct current generators motors
2. Alternative current generators and motors
3. Types of accumulators, charge, discharge
4. Parallel connections of electric- generators
5. Connections of batteries in various ways, reasons and important points in connecting
6. Ohm and KIRSHOFF laws and numerical examples related with them
7. Various measurement devices and current connecting methods
8. Transformers, types and duties
9. Rectifier
10. Heating effect of electric energy, electrical heaters and questions related with them.

c. Ship Building

1. Wet surface, block coefficient, middle crosscut-coefficient, prismatic- coefficient, waterline field, depth- coefficient.
2. Tons per unit immersion.
3. Application of Simpson's first rule on nongeometrical fields and tonnage.
4. Ship-building terminology.
5. Structure elements of steel ships and their simple drawings.
6. Engine and boiler beds.
7. Watertight bulkheads and hatchways.
8. Hatchways.
9. Bowthruster.
10. Double-bottom tanks, cofferdams suspension tanks, trim tanks, precautions before getting into the empty tanks.
11. Sedervalli balsam hives.
12. Basic knowledge about propeller, twist, visible sliding, or slip, real slip, trace and push.
13. Loyd, procedures, duties.
14. Dead-weight ton, gross ton, netton, rusam ton and their definitions.
15. Horse power and reduction in horse power.

d. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
- c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases

- a. Strength and weakness of acids and bases
- b. pH and its measurement
- 4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
- 5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings
 - b. Painting procedures
- 6. Fresh -water boil feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiling feeding water
- 7. Fuels and specifications Experiment applied on fuels
- 8. Oils used in ships and their specifications experiment applied on oils
- 9. Metals, alloys and other equipment's used in mostly in ships and their specifications

e. Steam Boilers

1. Steam and steam types.
2. Types of boilers.
3. Forms of fire-piped boilers.
4. Boil-heaters and dissuperheaters.
5. Steam boilers equipment.
6. Fuel systems and equipment of boilers.
7. Funnel desolation in boilers and their types.
8. Preparing the boilers and their settings and operations.
9. Productivity of boilers, steam productions and gas expenses.
10. Setting off the boilers, cleaning and maintenance.
11. Boiler boiling, having the boiler boiled.
12. Crast forming and prevention of crast.
13. Types of corrosion, preventing the corrosion, correction of the boiler water.
14. Boiler water experiments.

f. Steam Turbines

1. Types of the steam turbines.
2. Action and reaction turbines.
3. Compound turbines, stern-way turbines.
4. Moving and stationary parts of turbines.
5. Throat glands and gland-waterproof systems.
6. Nozzles.
7. Turbine equipment, cogwheeled equipment to reduce the overturning, flexible couplines.
8. Turbine valves.
9. Lubricating oil systems.
10. Preparing of the steam turbines, first movements, maneveours, checking during the voyage and shutting.
11. Procedures to be done at port.
12. Opening the turbine upper-case and checking.
13. Opening the turbine rotor and inspection.
14. Possible defections of turbines.

15. Steam expenses of turbines, powers, gas calculations, Hs and TS diagrams and their usage.
16. Sailing with HP and LP turbines only.
17. Static and dynamic balance in Turbines.

g. Technical Drawings

1. Drawing of all types of machines and boiler parts, heaters and coolers from three sides.
2. Crossing, drawing of crosscuts, searching procedures.
3. Measurement, surface process signs, determining the tolerances.
4. Welded, riveted, screw, tree nail and stud connections and their drawings.
5. Prism, cone and their openings.
6. Drawing of cylindric and conic.

h. Thermo-Dynamic

1. Basic gas laws.
2. Gas mixtures, and the pressure and heating of the mixture.
3. Defining the first and the second laws of thermo-dynamic by giving examples.
4. Carnot cycle and its efficiency.
5. Diesel, Otto cycle and their efficiency.
6. Theoretical mean pressure, indicated mean pressure, indicated thermal efficiency and numerical problems related with them, brake horse power, friction horse power.
7. Mechanic, hydraulic, and electrical brakes.
8. Specific fuel consumption and solving the numerical problems related with them.
9. Types of steam turbines velocity-pressure diagrams, steam and power calculations.
10. Reciprocating, their function principles and their cycles.
11. Gas turbine cycle. Jul and Brayton Cycle.
12. Steam engines cycle.
13. Measurement of power and theoretical mean pressure in steam machines and real mean pressure.
14. Using the Molier diagrams (h-s and T-S) for steam and solving the numerical problems related with these diagrams.

Unlimited Engineer Officer Examinations Topic Contents

Article 31. Unlimited Engineer Officer examination topic contents are shown below.

a. Operation and Maintenance of Diesel Motors

1. Two or four stroke cycle.
2. Heavy, middle and high rotationed diesel motors and their applications on ships.
3. Scavenging and supercharge.
4. Cylinder and piston structure and their floors.
5. Crankshafts.
6. Camshafts and valve timings.
7. Cham equipment and gears.
8. Bad plate and frames.
9. Fuel system and fuel burning methods.
10. Lubricating systems.
11. Cooling systems.
12. Preparation for starting, start. stern-way, and maneveour.

13. Shutting the engine at port.
14. Scavenge fires and carter explosions.
15. Exhaust gas boilers.
16. Intake air and exhaust valves.
17. Watch keeping.
18. Maintenance and repairing of moving and stationary parts of diesel motors.
19. Checking the machines by way of P-V diagrams, exhaust heat and maximum pressure.
20. Main-machine situation monitor.

b. Steam Boiler

1. General structure, gas and water pipes.
2. Types of boilers.
3. Boil equipment.
4. Boil-heaters, super heater, economiser, air-heater, dissuper-heater.
5. Preparing the fired-up boiler with gas, evaporating and setting.
6. Boilers handling during the voyage.
7. Chamber back pressure, reasons, precautions.
8. Set Off the Fire-up boilers by gas, cleaning and maintenance.
9. Protection methods of the boilers that will not use for a long period of time. Protection with or without water.
10. Collapse of stoke hole.
11. Dry up the chamber walls.
12. Mapping the boiler pipes.
13. Changing the boiler pipes.
14. Operation and maintenance of air heaters; economiser and super heaters.
15. Blow-off the steam boilers and MARPOL rules related with this.
16. Boiler boiling, having the boiler boiled.
17. Crast forming and prevention of crast cleaning.
18. Mechanic and chemical methods in crast cleaning.
19. Hydrostatic Experience, Accumulating experience.
20. Analyse of chamber gases.
21. Bettermenting of the boiler water and boiler-water experiments.

c. Steam and Feeding Water Systems

1. Steam and feeding water system that are used in steamed ships.
2. Forming of feeding water systems, condenser, circulating pumps, air-pump, extraction pumps, hotvell, air-ejector condencators, decompressor, feeding water heaters, feed water pumps, steam injector, steam traps.
3. Types of condensers. condenser pipes, leaking, dirty pipes, pipe cleanings, pipe mopping, pipe changing-procedures.
4. Vacuum, definition, advantages and disadvantages of high and low vacuum.
5. Maintenance of the condensers that will not use for a long period of time.
6. Circle pipes and possible defections.
7. Starting the air-ejectors, mistaken usage.
8. Air-injector, condenser.
9. Decompressing of the feeding water, procedures, and types.
10. Evaporators, operations, blow-off, preventing the crast.
11. Salinite and salt.
12. Boiling of the Evaporators.

13. Steam drain systems.

d. Steam Turbines

1. Types and classification of steam turbines.
2. Types of action turbines.
3. Operation principles and types of reaction turbines.
4. Combined turbines.
5. Stationary and moving parts of turbines.
6. Roto-shaft bearings.
7. Shaft and throat glands, labirent glands, carbon glands. little and big clearenced carbon glands, gland sealing systems.
8. Nozzle, wings and stady piston.
9. Steam valves.
10. Steam separators.
11. Cycle-reducers, defections, gear controlling, gear bearing, gear dismantling, gear morting.
12. Hydraulic coupling.
13. Flexible coupling.
14. Lubricating systems, and problems.
15. Stern-way equipment.
16. Regulator equipment.
17. Main turbine operations, preparing the turbines for voyage, navigation, shutting of the turbines, operation in low cargoes.
18. Operation of auxiliary units.
19. Loyd advises, continuation of vacuum, vibration in heating.
20. Maneveour.
21. Defections of steam turbines. low oil pressure, over-heating, high condenser pressure, dirty density.
22. Compound turbines, navigation with only LP turbine, navigation with only HP turbine.
23. Up-keys lifting, turbine rotor lifting. Inspection-keys closing.
24. Turbine adjustment, radial position, axial position.
25. Turbine balance, static and dynamic balance critic speed.

d. Maritime Chemistry

1. Basic definitions
 - a. Elements, compounds
 - b. Chemical reactions
 - c. Oxides and salts
2. Solution and applications related with solutions
3. Acids and bases
 - a. Strength and weakness of acids and bases
 - b. pH and its measurement
4. Corrosion
 - a. Basic periods of corrosion
 - b. Corrosion events, met in ships
 - c. Controlling the corrosion
 - d. Cotadic protection
5. Sea- Paintings
 - a. Anti- corrosive and anti fouling paintings

- b. Painting procedures
- 6. Fresh -water boiler feeding water , accumulator water
 - a. Specifications of sea- water
 - b. Boiler water and experiments applied on boiling feeding water
- 7. Fuels and specifications Experiment applied on fuels
- 8. Oils used in ships and their specifications experiment applied on oils
- 9. Metals, alloys and other equipment's used in mostly in ships and their specifications

e. Electrotechnology

- 1. Electron law.
- 2. Diagrams and symbols.
- 3. Simple circuits and OHM law.
- 4. Series and parallel circuits.
- 5. Ampermeter, and voltmeter.
- 6. Work, energy and power.
- 7. Electrical power sources.
- 8. Basic security.
- 9. Conductivity.
- 10. Isolation.
- 11. Testing and measurement.
- 12. Maintenance principles.
- 13. Batteries.
- 14. Magnetism and electro-magnetism.
- 15. Electro-magnetic induction.
- 16. Generators and motor principles.
- 17. Maintenance of motor and generators.
- 18. Impedunce-entindunce.
- 19. Brightening.
- 20. Alternative Current.
- 21. Distribution.
- 22. Transformers.

f. Technical-Drawings

- 1. Drawing of the geometrical figures
- 2. Lines
- 3. Perspective projections
- 4. Technical drawings
- 5. Measurement
- 6. Operating signals
- 7. Push-off
- 8. Screw rivets, connectors
- 9. Locking and keeping equipment
- 10. Riveted connections
- 11. Welding connections
- 12. Limits and passing
- 13. Geometric tolerates
- 14. Cams

15. Bearings
16. Oil joints

g. Auxiliary-Machines and Systems

1. Types of pumps and operating principles
2. Vacuum and air-cells
3. Pistoned pumps operation
4. Pump operations, air confusion, bearing heatings, noises
5. Air pumps, duties, types and operation principles
6. Weak operation in air-pumps
7. Air centrifugal pumps, operation and problems
8. Rotary pumps
9. Impeller pumps
10. Lop type pumps
11. Gear pumps
12. Screw pumps
13. Water pumps
14. Pump operations, starter and stop
15. Valves, stop, gate, non-return, reducing, magnetic, buoyed, thermostatic valves
16. Valve problems, valve operations
17. Ship systems, fresh water, bilgeways, ballast etc.
18. Automatic oily water separators.
19. Cooling systems, heating systems, heating, air-conditioning systems
20. Mud-furnace
21. Inert gas systems

h. Safety at Sea

1. Preventing pollution and contrail
2. Preventing collisions
3. First aid
4. Life-rescue equipment
5. Health dangers
6. Indoor precautions
7. Fire-fighting
8. Approved equipment used in dangerous zones
9. Survive
10. Respiration equipment
11. Electric bents
12. Machine overall precautions

Unlimited Second Engineer Officer Examinations Topic Contents

Article 32. Unlimited Second Engineer Officer examination topic contents are shown below.

a. Diesel Motor Drive System

1. Application of diesel motors on ships
2. Operation principles of diesel motors
3. Two and four stroke diesel engine operation principles

4. Timing diagrams
5. Indicator diagrams
6. Scavenging types
7. Direct current scavenging
8. Opposite-current scavenging
9. Super blower pumps
10. Super blower pumps
11. Supercharge, two and four stroke diesel engine supercharge applications
12. Gas-turbines and blowers
13. Stationary parts of diesel motors
14. Moving parts of diesel motors
15. Pistons, piston gears, piston rods, cross-head slips, and guides, connecting rods, crank gears, bearing screw.
16. Crank-shafts, firing order, crank-shaft defections, crank-shaft structure, crank-shaft deflections, opposite weights, volan
17. Diesel-motor bearings, permitted bearing cargoes, bearing structure and types, bearing metals, bearing cavity, ball bearing, crust-bearings.
18. Valve action mechanism and formations, camshafts, camshaft action equipment, cams, valve pushers, rockets, valves, valve springs, valve clearances, valve fittings
19. Fuel-eruption system, eruption pumps, eruption valves and possible defections
20. Injection valves, and induction parts and their functions
21. One or more holed closed injectors, compound injectors
22. Injection delay, injection pressure and injection time
23. Injected fuel quantity in circle, specific indicate and specific brake fuel consumption, fuel consumption per hour
24. Governors, mechanic and hydraulic regulators, operation principles, pneumatic governors and servomotors
25. Electric regulators
26. Regulators that restrict the cargo, over-speed governors and trips
27. Fuels and firing : Structure of crude oil, hydro-carbon fuels other liquid fuels, diesel fuels and fuel characteristics
28. Firing, specific air consumption, missing fire, heating value of fuels and their calculations
29. Fire and precautions
30. Fire-rooms
31. Fuel systems, lubrication and oils, lubricating systems, cooling the diesel motors, cooling systems, types, intake air systems, exhaust systems, starter and stern-way systems
32. Preparing the diesel motors for a voyage, operation, control during the voyage, shutting the engine
33. Diesel engine defections and precautions
34. Periodical maintenance of diesel engines
35. Maintenance and repair of moving parts of diesel-motors
36. Maintenance and repair of stationary parts of diesel-motors
37. Carter explosion, reasons and precautions
38. Explosions and fires in the pressured air pipes of diesel engines
39. Cylindric pressure indicators and indicator devices
40. Closed, compassion, open or slipped, weak string diagrams, diagram measurement and diagram analyse
41. Measurement of the power that were produced in cylinders by way of close-work diagram
42. Maximum pressure measurer, check diagrams .

43. Defective P-V diagrams
44. Maintenance of diesel machines that will not used for a long period of time
45. Force types that are used in diesel machines: Maximum, permanent maximum, economic, nominal, indicate, brake, mechanic, specific indicate, specific brake, indicate liter, brake liter powers, their definitions and calculations
46. Efficiency, average pressure, mechanic and electric dynamometer

b. Steam Boilers

1. Fire-piped boiler types
2. Water-piped boiler types
3. Fire and water piped boilers
4. Firing-up the liquid fuel boiler
5. Boiler equipment
6. Efficient firing methods
7. Boiler capacity, full cargo capacity, over cargo capacity, operation pressure, boiler efficiency, boiler-house efficiency, heating, boiler bigness, steam production power, grill surface cargo, boiler horse-power etc. definitions
8. Appearance of chimney
9. Fuel pipe, fuel heating, heating and pressure
10. Smoke in the chimney gases
11. Maintenance of the boilers with water or dry that will not be used for a long of time
12. Maintenance of the outer-surfaces
13. Dry up the chimney walls
14. Hell wall and ceiling collapse
15. Collapse of the fire-piped boilers, reasons and precautions
16. Maintenance of the boiler-pipes, mopping, widening the pipe edges, and to be curled, pipe machine and changing the pipes
17. Repairing the boiler sheet irons, hard patch
18. Repairing the boiler sheet irons
19. Air-heaters, fire reasons in air heaters, fire prevention
20. Economisers
21. Super-heaters, production of hot steam, dissuperheaters, maintenance of superheaters
22. Boiler boiling, reasons, damages and precautions, water-moving to a machine
23. Boiler boiling processes
24. Blow-off valves, in boiler surface and deep blow-off, important points in accordance with MARPOL
25. Hydrostatic and hydraulic experiments and application reasons
26. Safety valves, types and reasons
27. Accumulating experience and the reasons of this experiment
28. Reparation in steam pipes
29. Dismissed heat boilers
30. Corrosion, reasons, types, results and precautions
31. Crast forming and prevention of crast in mechanic and chemical methods
32. Solids that melts in sea-water
33. Solids that melts in fresh-water
34. Cleaning the boiler water
35. Boiler-water experiments, hardness, alkaline, acidic (pH), soluted oxygen, fosfat, fosfit etc.
36. Steam expenditure, numerical examples about steam expenditure

c. Steam and Feeding Water Systems

1. Types of feeding water pipes
2. Forming of feeding water systems = Condensers, density pumps, air-ejector, condenser, air pumps, vacuum tanks, feeding pumps drain cooler, feeding pumps, hatvell, turbofeed, etc.
3. Types of condensers, operation principles, maintenance and defections
4. Vacuum definition, measurement units, reasons of low vacuum and effects
5. Maintenance of the condensers that will not use for a long period of time
6. Circle pipes
7. Density pumps, operation, maintenance and repair of hotvells and air air-ejectors
8. Docking the feeding water
9. Feeding water heaters
10. Feeding water pumps
11. Steam injectors, why and when are they used
12. Evaporators, types, functions and operation principles
13. Evaporators operations, blow-off, boiling process
14. Crast forming in Evaporators and preventing the crast
15. Steam traps, operation principles, types, maintenance and defections
16. Main-drain systems

d. Steam Turbines

1. Types of steam turbines
2. Types of action turbines, speed-pressure diagrams, and the places where they are used
3. Types of reaction turbines, speed-pressure diagrams, and the places where they are used
4. Radial, tangent, one-current, double current, repeated current turbines and the places where they are used
5. Compound turbines, cross-compound turbines
6. Moving part of turbines
7. Stationary parts of turbines
8. Shaft and throat glands, gland sealing systems, operation principles
9. Labirent, carbon, hydrolic glands functions, maintenance and repair
10. Nozzle and wings, structures, their functions depending on where they are used
11. Dummy valves, which turbines are they used
12. Steam valves : Trotul, manoeuvre, governor, nozzle group etc., guardian valve, central valve
13. Steam separators, functions, types and the places where they are used
14. Cycle-reducer equipment, types and rates
15. Cycle-reducer gears, maintenance, and repair
16. Flexible couplings, types, functions and where they are used
17. Hydraulic couplings, operation principles where and why they are used
18. Lubricating pipes, types
19. Torna-gear equipment, functions, why they are used
20. Regulators, types and why they are used
21. Main-turbine operations
22. Preparing the steam turbines to a voyage, heating, steam rotating, manoeuvre
23. Navigation, control during the voyage
24. Dry-up and shotting the turbines following the voyage
25. Turbine defections
26. Manoeuvre principles, manoeuvre specifications
27. Up-keys lifting and important points taken into consideration in this procedures

28. Turbine rotor lifting and points taken into consideration in this procedures
29. Continuation of the voyage by using only HP and LP turbines because of defections
30. Radial and axial clearance controlling of turbines, measurement and controlling devices used in this process
31. Dynamic and static balance of the turbines, how are these balances done, failures and correcting
32. Specific, steam expenditure per hour, power calculations in steam turbines

e. Electro-Technology

1. Electric circuits, current, resistance and potential concepts
2. OHM law, circuit unit, potential difference, series and parallel connections of resistance, series-parallel connection and resistivity
3. Accumulators, types, the places where they are used, series, parallel and series-parallel connections of inner-resistanced batteries, and conditions related with them
4. Charge circuits, charging of the batteries, charge current and numerical values of potention
5. Work, energy and power
6. Heating effect of one current
7. Khirshoff laws and applications
8. Magnetism and electro-magnetism
9. Capacitors, functions, types and specifications
10. DC generators, types and specifications
11. Parallel connections of direct current generators, reasons, important points
12. Direct current motors, types and specifications
13. Direct current motors startings, starters
14. Alternative current, definitions and why are they used
15. Poly-phasal systems, star, triangle, three-four conductors
16. Transformators, functions, types and where are they used
17. Transformation of direct current to an alternative current
18. Cables and calculations of cable sections
19. Distribution systems, distribution tables
20. Moving and stationary parts of motors and generators, their maintenance and repair
21. Emergency battery systems
22. Emergency diesel generators
23. Taking electric energy from port
24. Lightening, florange-lightening

f. Ship Building

1. Center of gravity movement
2. Swimming
3. Breadthways static balance
4. Liquid effects on balance
5. TPL and depletion curves
6. Form coefficients
7. Area and size of ship form
8. KB, BM and metacentric diagrams
9. Collapse
10. Static stability momentum
11. Trim
12. Getting and grounding in dry-dock

13. Damage control
14. Ship movement
15. Vibration at ships
16. Steer
17. Resistance, power and fuel expenditures
18. Drive and propellers
19. Ship structures

g. Auxiliary Machines and Systems

1. Air-compressors and pressed air systems
2. Pistoned pumps
3. Plangered pumps
4. Maintenance, operation and repairing principles of piston pump
5. Feeding water pumps and problems
6. Air-pumps, functions, types and where they are used
7. Centrifuge pumps, operation principles
8. Rotation pumps
9. Valves, stop, gate, non-return, reducing, magnetic, buoyed, bellowed etc.
10. Valve equipment, leaking, reasons, spindal press disk breaking, disk and home fittings
11. Bilge systems, oily-water separators
12. Cooling systems, heat-rooms
13. Ballast systems, cargo heating systems
14. Fresh water systems, air pressure tanks
15. Heating systems, ventilation systems
16. Fire research and alarm systems, stationary fire extinguish establishments
17. Inert gas systems
18. Steemed, electric and hydraulic deck machines
19. Steer engines, steer equipment, types, operation, maintenance and repairing.
20. Air influence in steer tele-motors ventilation processes

h. Safety at Sea

1. Preventing pollution and contral
2. Preventing collisions
3. First aid
4. Life-rescue equipment
5. Health dangers
6. Indoor precautions
7. Fire-fighting
8. Approved equipment used in dangerous zones
9. Survive
10. Respiration equipment
11. Electric bents
12. Machine overall precautions

i. Thermodynamic

1. Thermodynamic specifications
2. Energy protection
3. Energy connections
4. Ideal gases, ideal gas laws

5. Ideal gas variation
6. Variation analysis, back-cycles
7. Antpohy and second law
8. Gas pressing, and widening
9. Gas turbines and gas turbine cycle
10. Internal-fired machine cycle
11. Loses, efficiency, horse-powers and gas expenditures of internal fired machines
12. Gas mixtures and determining the pressure, heating and gas constant of this mixture
13. Fire and fire productions of air and gas quantity
14. Real gases
15. Liquids and steams
16. Changing of the steams
17. Steam cycles
18. Pistoned steam engines, ranking cycle
19. Steam turbines
20. Gas turbines
21. Modern steam cycles

h. Automatic Control

1. General information
2. Heating measurement
3. Pressure measurement
4. Level measurement
5. Current measurement
6. Other measurement
7. Signal conductivity
8. Final control elements
9. Control theory
10. Pheno-matic control principles
11. Controlling
12. Control phases
13. Remote control, diesel control
14. Air-source
15. Monitor systems

Unlimited Chief Engineer Examinations Topic Contents

Article 33. Unlimited Chief Engineer examination topic contents are shown below

a. Diesel Motor Drive System

1. Application of diesel motors on ships
2. Operation principles of diesel motors
3. Two and four stroke diesel engine operation principles
4. Timing diagrams
5. Indicator diagrams
6. Scavenging types
7. Direct current scavenging
8. Opposite-current scavenging

9. Super blower pumps
10. Super blower pumps
11. Supercharge, two and four stroke diesel engine supercharge applications
12. Gas-turbines and blowers
13. Stationary parts of diesel motors
14. Moving parts of diesel motors
15. Pistons, piston gears, piston rods, cross-head slips, and guides, connecting rods, crank gears, bearing screw.
16. Crank-shafts, firing order, crank-shaft defections, crank-shaft structure, crank-shaft deflections, opposite weights, volan
17. Diesel-motor bearings, permitted bearing cargoes, bearing structure and types, bearing metals, bearing cavity, ball bearing, crust-bearings.
18. Valve action mechanism and formations, camshafts, camshaft action equipment, cams, valve pushers, rockets, valves, valve springs, valve clearances, valve fittings
19. Fuel-eruption system, eruption pumps, eruption valves and possible defections
20. Injection valves, and induction parts and their functions
21. One or more holed closed injectors, compound injectors
22. Injection delay, injection pressure and injection time
23. Injected fuel quantity in circle, specific indicate and specific brake fuel consumption, fuel consumption per hour
24. Governors, mechanic and hydraulic regulators, operation principles, pneumatic governors and servomotors
25. Electric regulators
26. Regulators that restrict the cargo, over-speed governors and trips
27. Fuels and firing : Structure of crude oil, hydro-carbon fuels other liquid fuels, diesel fuels and fuel characteristics
28. Firing, specific air consumption, missing fire, heating value of fuels and their calculations
29. Fire and precautions
30. Fire-rooms
31. Fuel systems, lubrication and oils, lubricating systems, cooling the diesel motors, cooling systems, types, intake air systems, exhaust systems, starter and stern-way systems
32. Preparing the diesel motors for a voyage, operation, control during the voyage, shutting the engine
33. Diesel engine defections and precautions
34. Periodical maintenance of diesel engines
35. Maintenance and repair of moving parts of diesel-motors
36. Maintenance and repair of stationary parts of diesel-motors
37. Carter explosion, reasons and precautions
38. Explosions and fires in the pressured air pipes of diesel engines
39. Cylindric pressure indicators and indicator devices
40. Closed, compassion, open or slipped, weak string diagrams, diagram measurement and diagram analyse
41. Measurement of the power that were produced in cylinders by way of close-work diagram
42. Maximum pressure measurer, check diagrams
43. Defective P-V diagrams
44. Maintenance of diesel machines that will not used for a long period of time
45. Force types that are used in diesel machines: Maximum, permanent maximum, economic, nominal, indicate, brake, mechanic, specific indicate, specific brake, indicate liter, brake liter powers, their definitions and calculations

46. Efficiency, average pressure, mechanic and electric dynamometer

b. Steam Boilers

1. Fire-piped boiler types
2. Water-piped boiler types
3. Fire and water piped boilers
4. Firing-up the liquid fuel boiler
5. Boiler equipment
6. Efficient firing methods
7. Boiler capacity, full cargo capacity, over cargo capacity, operation pressure, boiler efficiency, boiler-house efficiency, heating, boiler bigness, steam production power, grill surface cargo, boiler horse-power etc. definitions
8. Appearance of chimney
9. Fuel pipe, fuel heating, heating and pressure
10. Smoke in the chimney gases
11. Maintenance of the boilers with water or dry that will not be used for a long of time
12. Maintenance of the outer-surfaces
13. Dry up the chimney walls
14. Hell wall and ceiling collapse
15. Collapse of the fire-piped boilers, reasons and precautions
16. Maintenance of the boiler-pipes, mopping, widening the pipe edges, and to be curled, pipe machine and changing the pipes
17. Repairing the boiler sheet irons, hard patch
18. Repairing the boiler sheet irons
19. Air-heaters, fire reasons in air heaters, fire prevention
20. Economisers
21. Super-heaters, production of hot steam, dissuperheaters, maintenance of superheaters
22. Boiler boiling, reasons, damages and precautions, water-moving to a machine
23. Boiler boiling processes
24. Blow-off valves, in boiler surface and deep blow-off, important points in accordance with MARPOL
25. Hydrostatic and hydraulic experiments and application reasons
26. Safety valves, types and reasons
27. Accumulating experience and the reasons of this experiment
28. Reparation in steam pipes
29. Dismissed heat boilers
30. Corrosion, reasons, types, results and precautions
31. Crast forming and prevention of crast in mechanic and chemical methods
32. Solids that melts in sea-water
33. Solids that melts in fresh-water
34. Cleaning the boiler water
35. Boiler-water experiments, hardness, alkaline, acidic (pH), soluted oxygen, fosfat, fosfit etc.
36. Steam expenditure, numerical examples about steam expenditure

c. Steam and Feeding Water Systems

1. Types of feeding water pipes
2. Forming of feeding water systems = Condensers, density pumps, air-ejector, condenser, air pumps, vacuum tanks, feeding pumps drain cooler, feeding pumps, hatvell, turbofeed, etc.
3. Types of condensers, operation principles, maintenance and defections

4. Vacuum definition, measurement units, reasons of low vacuum and effects
5. Maintenance of the condensers that will not use for a long period of time
6. Circle pipes
7. Density pumps, operation, maintenance and repair of hotvells and air air-ejectors
8. Docking the feeding water
9. Feeding water heaters
10. Feeding water pumps
11. Steam injectors, why and when are they used
12. Evaporators, types, functions and operation principles
13. Evaporators operations, blow-off, boiling process
14. Crast forming in Evaporators and preventing the crast
15. Steam traps, operation principles, types, maintenance and defections
16. Main-drain systems

d. Steam Turbines

1. Types of steam turbines
2. Types of action turbines, speed-pressure diagrams, and the places where they are used
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7. Stationary parts of turbines
8. Shaft and throat glands, gland sealing systems, operation principles
9. Labirent, carbon, hydraulic glands functions, maintenance and repair
10. Nozzle and wings, structures, their functions depending on where they are used
11. Dummy valves, which turbines are they used
12. Steam valves : Trotul, manoeuvre, governor, nozzle group etc., guardian valve, central valve
13. Steam separators, functions, types and the places where they are used
14. Cycle-reducer equipment, types and rates
15. Cycle-reducer gears, maintenance, and repair
16. Flexible couplings, types, functions and where they are used
17. Hydraulic couplings, operation principles where and why they are used
18. Lubricating pipes, types
19. Torna-gear equipment, functions, why they are used
20. Regulators, types and why they are used
21. Main-turbine operations
22. Preparing the steam turbines to a voyage, heating, steam rotating, manoeuvre
23. Navigation, control during the voyage
24. Dry-up and shotting the turbines following the voyage
25. Turbine defections
26. Manoeuvre principles, manoeuvre specifications
27. Up-keys lifting and important points taken into consideration in this procedures
28. Turbine rotor lifting and points taken into consideration in this procedures
29. Continuation of the voyage by using only HP and LP turbines because of defections
30. Radial and axial clearance controlling of turbines, measurement and controlling devices used in this process

31. Dynamic and static balance of the turbines, how are these balances done, failures and correcting
32. Specific, steam expenditure per hour, power calculations in steam turbines

e. Electro-Technology

1. Electric circuits, current, resistance and potential concepts
2. OHM law, circuit unit, potential difference, series and parallel connections of resistance, series-parallel connection and resistivity
3. Accumulators, types, the places where they are used, series, parallel and series-parallel connections of inner-resistanced batteries, and conditions related with them
4. Charge circuits, charging of the batteries, charge current and numerical values of potential
5. Work, energy and power
6. Heating effect of one current
7. Khirshoff laws and applications
8. Magnetism and electro-magnetism
9. Capacitors, functions, types and specifications
10. DC generators, types and specifications
11. Parallel connections of direct current generators, reasons, important points
12. Direct current motors, types and specifications
13. Direct current motors startings, starters
14. Alternative current, definitions and why are they used
15. Poly-phasal systems, star, triangle, three-four conductors
16. Transformers, functions, types and where are they used
17. Transformation of direct current to an alternative current
18. Cables and calculations of cable sections
19. Distribution systems, distribution tables
20. Moving and stationary parts of motors and generators, their maintenance and repair
21. Emergency battery systems
22. Emergency diesel generators
23. Taking electric energy from port
24. Lightening, flurance-lightening

f. Ship Building

1. Center of gravity movement
2. Swimming
3. Breadthways static balance
4. Liquid effects on balance
5. TPL and depletion curves
6. Form coefficients
7. Area and size of ship form
8. KB, BM and metacentric diagrams
9. Collapse
10. Static stability momentum
11. Trim
12. Getting and grounding in dry-dock
13. Damage control
14. Ship movement
15. Vibration at ships
16. Steer

17. Resistance, power and fuel expenditures
18. Drive and propellers
19. Ship structures

g. Auxiliary Machines and Systems

1. Air-compressors and pressed air systems
2. Pistoned pumps
3. Plangered pumps
4. Maintenance, operation and repairing principles of piston pump
5. Feeding water pumps and problems
6. Air-pumps, functions, types and where they are used
7. Centrifuge pumps, operation principles
8. Rotation pumps
9. Valves, stop, gate, non-return, reducing, magnetic, buoyed, bellowed etc.
10. Valve equipment, leaking, reasons, spindal press disk breaking, disk and home fittings
11. Bilge systems, oily-water separators
12. Cooling systems, heat-rooms
13. Ballast systems, cargo heating systems
14. Fresh water systems, air pressure tanks
15. Heating systems, ventilation systems
16. Fire research and alarm systems, stationary fire extinguish establishments
17. Inert gas systems
18. Steemed, electric and hydraulic deck machines
19. Steer engines, steer equipment, types, operation, maintenance and repairing.
20. Air influence in steer tele-motors ventilation processes

h. Safety at Sea

1. Preventing pollution and contrail
2. Preventing collisions
3. First aid
4. Life-rescue equipment
5. Health dangers
6. Indoor precautions
7. Fire-fighting
8. Approved equipment used in dangerous zones
9. Survive
10. Respiration equipment
11. Electric bents
12. Machine overall precautions

i. Thermodynamic

1. Thermodynamic specifications
2. Energy protection
3. Energy connections
4. Ideal gases, ideal gas laws
5. Ideal gas variation
6. Variation analysis, back-cycles
7. Antpohy and second law
8. Gas pressing, and widening

9. Gas turbines and gas turbine cycle
10. Internal-fired machine cycle
11. Losses, efficiency, horse-powers and gas expenditures of internal fired machines
12. Gas mixtures and determining the pressure, heating and gas constant of this mixture
13. Fire and fire productions of air and gas quantity
14. Real gases
15. Liquids and steams
16. Changing of the steams
17. Steam cycles
18. Pistoned steam engines, ranking cycle
19. Steam turbines
20. Gas turbines
21. Modern steam cycles

h. Automatic Control

1. General information
2. Heating measurement
3. Pressure measurement
4. Level measurement
5. Current measurement
6. Other measurement
7. Signal conductivity
8. Final control elements
9. Control theory
10. Pheno-matic control principles
11. Controlling
12. Control phases
13. Remote control, diesel control
14. Air-source
15. Monitor systems

Validity

Article 34. This convention, which is prepared in accordance with article 39 of the convention on standards of training, certification, examination, Watchkeeping and dressing for seafarers, shall be recognised as valid for service after being approved by ministry.

Execution

Article 35. The articles of this convention is executed by the minister who is in charge of Maritime Councillor.

REGULATIONS ON MANNING OF SHIPS

Purpose And Support

Article 1. This convention is prepared in accordance with the convention on standards of training, certification, examination, watchkeeping and dressing, Section I. Article I. The minimum dressing, competency and numbers of the seafarers are determined in additional charts.

Application

Article 2. This convention shall apply to seafarers serving on board seagoing ships entitled to fly the Turkish flag.

Giving The List Of Seafarers

Article 3. Master gives the list of the seafarers that are determined in the additional charts of the convention to a port of departure. Approved copy of the list is kept in the ship to show in the inspections. All checking procedures are done in accordance with this approved list.

Dressing The Trade-Ships

Article 4. Minimum competency levels and the numbers of the seafarers that the trade-ships shall have are shown in additional charts. Ship owner may have more seafarers who have higher competency levels. But those who have no competency of master and chief engineer/chief mechanic shall not work as a master, chief engineer/chief mechanic.

The administration is the authority to give a permission to complete the voyage with less personnel in necessary conditions for the service ships and the ships has an air cushion or water ski type carina, ships ability to be remote controlled or need restricted human force, using more nuclear energy, voyage regions, protected by sea and air conditions, time and distance of the voyage requires less seafarers.

If the number of the seafarer decreases from any reason in the foreign countries, a foreign seafarer with the same competency level may be taken till the ship arrives to the first Turkish port. But at this port these foreign seafarers' jobs finish.

Cooks And Stewards

Article 5. Ships with 15-20 seafarers shall have 1 cook, and ships with more than 21 seafarers shall have 1 cook and 1 steward.

The ship owner decides the number of the clerks and musicians and the number of the cooks and stewards of the passengers.

In necessary conditions the master of the ship charges one of the crews by not imping his principal duty as a steward or a cook till the first port of arrival.

Prohibition Of Made Worked In Two Different Classes

Article 6. Master, officers and crew shall not be worked at the same time in deck and machine. However ships that are not need to have permanent communication Watchkeeping applications and cargo ships that have radio station, masters, officers and crew, if they have a communication operator competency certificate, may work as a radio operator by not ??? their principal duties. Deck officers who have GMDDS courses and a competency certificate may be general operator.

Radio Officer And Operator

Article 7. In every ship there must be radio officers and operators. Their numbers and competency levels are shown in the 16-17 tables of this convention.

Restricted Operator Competency

Article 8. Deck officers must have a restricted operate competency that are declared in agreement Code-A, A-II/1, A-II/3 separations. Administration will give enough time to the authorities to prepare this certificate.

Working Right With Low Competency

Article 9. Seafarers may work with the lower competency level than their own competency level.

Seaworthiness Certificate

Article 10. Ships that will have a near coastal or ocean going voyage must have a seaworthiness certificate. In addition to this, in the harbour voyages, ships, passing the administrative borders of the port-office, (passenger-ships and yachts having a voyage in 25 miles from the port of departure are not in this classification), must have a seaworthiness certificate. But if passenger ships and yachts pass the 25 miles, they must be equipped with the conditions that are mentioned in "Technical Specifications of Trade Ships Regulations".

Voyage Banned Ships

Article 11. If the ships are not equipped with the seafarers that their number and competency levels are shown in the additional tables, are not given a permission for a voyage.

Validity

Article 12. This convention, which is prepared in accordance with the Article I of convention on standards of training, certification, examination, watchkeeping, and dressing for seafarers shall be recognised as valid for service after being approved by ministry.

Execution

Article 13. The articles of this convention is executed by the minister who is in charge of Maritime Councillor.

TABLE 1
MASTER AND DECK OFFICERS
(Ocean-Going and Near Coastal Voyage Regions)

Voyage Regions	Ship Type and Gross Tonnage	Ocean-Going Master	O.G. First Officer	O.G. Watch-Keeping	Competency After Put Into Entry			Competency Before Put Into Entry					Total		
					Restricted Master	Restricted First Officer	Rest. Watch-Keeping Officer	Master Class I	Master Class II	Master Class III	Master Class IV	Near Voyage First Officer		N.V. Watch-Keeping Officer	
O.G. Voyage	Passenger Ships	1 (K)	1 (B)	2										4	
	Cargo Ships	Bigger than 25,000	1 (K)	1 (B)	2										4
		1,601-25,000	1 (K)	1 (B)	1										3
		200-1,600	1 (K)		1(B),1										3
Near Voyage	Passenger Ships	Bigger than 5,000	1 (K)	1 (B)	2									4	
		1,600-5,000	1 (K)	1 (B)				2	1 (K)	1 (B)			2	4	
		Less than 1,600				1 (K)	1 (B)	2	1 (K)	1 (B)	2				4
	Cargo Ships	Bigger than 25,000				1 (K)	1 (B)	1	1 (K)	1 (B)	1				3
		5,001-25,000				1 (K)	1 (B)	1		1 (K)	1 (B)				3
		2,501-5,000				1 (K)	1 (B)	1		1 (K)		1 (B)	1		3
		1,601-2,500				1 (K)	1 (B)	1			1 (K)	1 (B)		1	3
		1,251-1,500				1 (K)	1 (B)				1 (K)		1 (B)		2
		200-1,250				1 (K)	1 (B)					1 (K)		1 (B)	2
		Less than 200				1 (K)						1 (K)			1

TABLE 2
MASTER AND DECK OFFICERS
(Cabotage Voyage Regions)

Voyage Regions	Ship Type and Gross Tonnage	Ocean-Going Master	O.G. First Officer	O.G. Watch-Keeping	Competency After Put Into Entry			Competency Before Put Into Entry					Total			
					Restricted Master	Restricted First Officer	Rest. Watch-Keeping Officer	Master Class I	Master Class II	Master Class III	Master Class IV	Near Voyage First Officer		N.V. Watch-Keeping Officer	Coastal Master	Harbour Master
Cabotage Voyage	Passenger Ships	Bigger than 5,000	1 (K)	1 (B)			1	1							4	
		2,001-5,000				1 (K)	1 (B)	2	1 (K)	1 (B)	2				4	
		1,601-2,000				1 (K)	1 (B)	2	1 (K)	1 (B)				1	4	
		1,001-1,600				1 (K)	1 (B)	1	1 (K)		1 (B)	1			3	
		701-1,000				1 (K)	1 (B)	1	1 (K)			1 (B)			3	
		200-700				1 (K)	1 (B)	1			1 (K)			1 (B)	1	3
	Cargo Ships	Less than 200					1B,1K							1 (K)	1 (B)	2
		Bigger than 25,000				1 (K)	1 (B)	1	1 (K)		1 (B)			1		3
		5,001-25,000				1 (K)	1 (B)	1		1 (K)	1 (B)			1		3
		2,501-5,000				1 (K)	1 (B)	1		1 (K)	1 (B)			1		3
		1,601-2,500					1 (K)	1 (B)			1 (K)	1 (B)				2
		1,251-1,500					1 (K)	1 (B)				1 (K)		1 (B)		2
		200-1,250						1B,1K						1 (K)	1 (B)	2
		Less than 200						1 (K)						1 (K)		1

Note: (K) and (B) refer to Captain and First Officer respectively, others are Deck Officer

TABLE 3
MASTER AND DECK OFFICERS
(Harbour Voyage and Restricted with 100 miles Harbour Voyage Regions)

Voyage Regions	Ship Type and Gross Tonnage	Ocean-Going Master	O.G. First Officer	O.G. Watch-Keeping	Competency After Put Into Entry			Competency Before Put Into Entry							Total			
					Restricted Master	Restricted First Officer	Rest. Watch-Keeping Officer	Master Class I	Master Class II	Master Class III	Master Class IV	Near Voyage First Officer	N.V. Watch-Keeping Officer	Coastal Master		Harbour Master		
Restricted with 100 miles Harbour Voyage	Passenger Ships	Bigger than 5,000			1 (K)	1 (B)	1	1 (K)	1 (B)	1							3	
		2,001-5,000				1 (K)	1 (B)	1	1 (K)	1 (B)						1	3	
		1,601-2,000				1 (K)	1 (B)	1	1 (K)		1 (B)					1	3	
		1,001-1,600					1 (K)	1 (B)		1 (K)					1 (B)		2	
		701-1,000					1 (K)	1 (B)			1 (K)				1 (B)		2	
		200-700							1 (K), 1 (B)							1 (K)	1 (B)	2
		Less than 200						1 (K)							1 (K)		1	
Restricted with 100 miles Harbour Voyage	Cargo Ships	Bigger than 5,000			1 (K)	1 (B)			1 (K)	1 (B)							2	
		2,501-5,000				1 (K)	1 (B)			1 (K)	1 (B)						2	
		1,601-2,500				1 (K)	1 (B)			1 (K)		1 (B)					2	
		1,251-1,600						1 (K), 1 (B)				1 (K)			1 (B)		2	
		200-1,250						1 (K), 1 (B)							1 (K)	1 (B)	2	
Harbour Voyage	Passenger	Bigger than 200					1 (K)								1 (K)		1	
		Less than 200						1 (K)								1 (K)	1	
	Cargo Ships	Bigger than 1,000						1 (K)			1 (K)							1
		501-1,000						1 (K)				1 (K)						1
		200-500						1 (K)							1 (K)		1	
		Less than 200						1 (K)								1 (K)	1	
																1 (K)	1	

Note: (K) and (B) refer to Captain and First Officer respectively, others are Deck Officer

TABLE 4
DECK CREW IN PASSENGER SHIPS

VOYAGE REGIONS	SHIP GROSS-TONNAGE	BOAT SWAIN	ABLE SEAMAN	ORDINARY SEAMAN	TOTAL
NEAR & OCEAN GOING VOYAGE REGIONS	BIGGER THAN 5,000	1	6	7	14
	1,600-5,000	1	4	5	10
	LESS THAN 1,600	1	3	4	8
CABOTAGE VOYAGE	BIGGER THAN 5,000	1	4	5	10
	1,600-5,000	1	3	4	8
	LESS THAN 1,600	1	2	3	6
HARBOUR VOYAGE	BIGGER THAN 900	1	2	2	5
	601-900	1	1	2	4
	201-600	1	1	1	3
	51-200		2	1	3
	25-50		1		1
	LESS THAN 25			1	1

TABLE 5
DECK CREW IN CARGO SHIPS

NEAR (Including Cabotage Voyage) and OCEAN GOING VOYAGE REGIONS											
SHIP GROS TONATILLO	BOAT SWAIN		ABLE SEAMAN		ORD. SEAMAN		DECK BOY		TOTAL		
	NEAR	OCEAN	NEAR	OCEAN	NEAR	OCEAN	NEAR	OCEAN	NEAR	OCEAN	
BIGGER THAN 5.000	1	1	2	2	2	3	1	1	6	7	
2.501-5.000	1	1	2	2	1	1	1	1	5	5	
1.251-2.500	1	1	1	1	1	1	1	1	4	4	
151-1.250			1	1	1	1	1	1	3	3	
25-150			1	1			1	1	2	2	
18-25					1	1			1	1	
LESS THAN 18							1	1	1	1	
HARBOUR VOYAGE (Administrative and Restricted with 100 miles) REGIONS											
SHIP GROS TONATILLO	BOAT SWAIN		ABLE SEAMAN		ORD. SEAMAN		DECK BOY		TOTAL		
	NEAR	OCEAN	NEAR	OCEAN	NEAR	OCEAN	NEAR	OCEAN	NEAR	OCEAN	
BIGGER THAN 1.000	1		1		1		1		4		
601-1.000	1		1		1				3		
151-600			1		1		1		3		
51-150			1						1		
18-50					1				1		
LESS THAN 18							1		1		

TABLE 6
CHIEF ENGINEER OFFICER, CHIEF ENGINEER & ENGINEER OFFICERS
(Near Voyage and Ocean-Going Voyage Regions)

Voyage Regions	Power of Ships (KiloWatt)	Type of Ships	Competency After Put Into Entry						Competency Before Put Into Entry						Total	
			Unlimited Chief Engineer	Unlimited Second Engineer	Unlimited Engineer Officer	Restricted Chief Engineer	Restricted Second Engineer	Restricted Engineer Officer	Chief Engineer Class I	Chief Engineer Class II	Chief Engineer Class III	Chief Engineer Class IV	Second Engineer	Engineer Officer		
Ocean-Going Voyage	Bigger than 9000	Passenger	1 (C)	1 (S)	2											4
		Cargo	1 (C)	1 (S)	2											4
	3.001-9.000	Passenger	1 (C)	1 (S)	2											4
		Cargo	1 (C)	1 (S)	1											3
	750-3.000	Passenger	1 (C)	1 (S)	2											4
		Cargo	1 (C)		1(S),1											3
Less than 750	Passenger				1 (C)	1 (S)	1	1 (C)	1 (S)	1				1	3	
	Cargo				1 (C)	1 (S)	1	1 (C)	1 (S)				1		3	
Near Voyage	Bigger than 9.000	Passenger				1 (C)	1 (S)	2	1 (C)	1 (S)	1			1	4	
		Cargo				1 (C)	1 (S)	1	1 (C)	1 (S)	1				3	
	3.001-9.000	Passenger				1 (C)	1 (S)	2	1 (C)	1 (S)	1			1	4	
		Cargo				1 (C)	1 (S)	1		1 (C)	1 (S)			1	3	
	1.501-3.000	Passenger				1 (C)	1 (S)	1	1 (C)		1 (S)			1	3	
		Cargo				1 (C)		1 (S)		1 (C)				1 (S)	2	
	751-1.500	Passenger				1 (C)		1(S),1		1 (C)		1 (S)		1	3	
		Cargo				1 (C)		1 (S)			1 (C)			1 (S)	2	
	370-751	Passenger				1 (C)		1 (S)				1 (C)		1 (S)	2	
		Cargo				1 (C)		1 (S)				1 (C)		1 (S)	2	
	Less than 370				1 (C)							1 (C)			1	

Note : (C) and (S) refer to Chief and Second Engineer respectively, others are Deck Officers

TABLE 7
CHIEF ENGINEER OFFICER, CHIEF ENGINEER & ENGINEER OFFICERS
 (Cabotage Voyage Regions)

Voyage Regions	Power of Ships (KiloWatt)	Type of Ships	Competency After Put Into Entry						Competency Before Put Into Entry						Total		
			Unlimited Chief Engineer	Unlimited Second Engineer	Unlimited Engineer Officer	Restricted Chief Engineer	Restricted Second Engineer	Restricted Engineer Officer	Chief Engineer Class I	Chief Engineer Class II	Chief Engineer Class III	Chief Engineer Class IV	Second Engineer	Engineer Officer		Sea Engineer	Sea Motorman
Cabotage Voyage	Bigger than 10 000	Passenger	1 (C)	1 (S)	1			1	1 (C)	1 (S)	1			1			4
		Cargo				1 (C)	1 (S)	1	1 (C)		1 (S)	1					3
	3 001-10 000	Passenger				1 (C)	1 (S)	1	1 (C)	1 (S)	1						3
		Cargo				1 (C)	1 (S)	1	1 (C)	1 (S)				1			3
	751-3 000	Passenger				1 (C)		1 (S), 1			1 (C)	1 (S)			1		3
		Cargo				1 (C)		1 (S)			1 (C)			1 (S)			2
	370-750	Passenger					1 (C)	1 (S)				1 (C)		1 (S)			2
		Cargo						1 (C)				1 (C)					1
	Less than 370	Passenger						1 (C), 1 (S)							1 (C)	1 (S)	2
		Cargo						1 (C)							1 (C)		1

Note: (C) and (S) refer to Chief and Second Engineer respectively, others are Deck Officers

TABLE 8
CHIEF ENGINEER OFFICER, CHIEF ENGINEER & ENGINEER OFFICERS
 (Harbour Voyage and Restricted with 100 miles Harbour Voyage Regions)

Voyage Regions	Power of Ships (KiloWatt)	Type of Ships	Competency After Put Into Entry						Competency Before Put Into Entry						Total	
			Unlimited Chief Engineer	Unlimited Second Engineer	Unlimited Engineer Officer	Restricted Chief Engineer	Restricted Second Engineer	Restricted Engineer Officer	Chief Engineer Class I	Chief Engineer Class II	Chief Engineer Class III	Chief Engineer Class IV	Second Engineer	Engineer Officer		Sea Engineer
Harbour Voyage (Restricted with 100 miles)	Bigger than 10 000	Passenger				1 (C)	1 (S)	1	1 (C)	1 (S)				1		3
		Cargo				1 (C)	1 (S)	1	1 (C)		1 (S)			1		3
	3 001-10 000	Passenger				1 (C)		1 (S)		1 (C)	1 (S)					2
		Cargo				1 (C)		1 (S)		1 (C)	1 (S)					2
	751-3 000	Passenger					1 (C)	1 (S)			1 (C)			1 (S)		2
		Cargo				1 (C)	1 (S)			1 (C)				1 (S)		2
	370-750	Passenger					1 (C), 1 (S)							1 (C)	1 (S)	2
		Cargo					1 (C), 1 (S)							1 (C)	1 (S)	2
	Less than 370	Passenger					1 (C), 1 (S)							1 (C)	1 (S)	2
		Cargo					1 (C)								1 (C)	1
Harbour Voyage (Administrative Regions)	Bigger than 3 000	Passenger			1 (C)	1 (S)				1 (C)				1 (S)		2
		Cargo			1 (C)	1 (S)				1 (C)				1 (S)		2
	751-3 000	Passenger				1 (C)	1 (S)						1 (C)	1 (S)		2
		Cargo				1 (C)	1 (S)						1 (C)	1 (S)		2
	370-750	Passenger					1 (C)						1 (C)			1
		Cargo					1 (C)						1 (C)			1
	Less than 370	Passenger					1 (C)								1 (C)	1
		Cargo					1 (C)								1 (C)	1

Note: (C) and (S) refer to Chief and Second Engineer respectively, others are Deck Officers

TABLE 9
ENGINE CREW IN CARGO AND PASSANGER SHIPS

Near (Including Cabotage Voyage) and Ocean Going Voyage Regions										
Power of the Ship (Kilowatt)	Donkey Man	Oiler			Wiper			Total		
		Passenger	Cargo		Passenger	Cargo		Passenger	Cargo	
			N.Voyage	O.Voyage		N.Voyage	O.Voyage		N.Voyage	O.Voyage
Bigger 3.000	1	4	2	3	3	1	1	8	4	5
1.500-3.000	1	3	1	2	2	1	1	6	3	4
750-1.500		2	1	1	1		1	3	1	2
Less 750		2	1	1				2	1	1
Harbour Voyage (Administrative and Restricted with 100 miles)										
Power of the Ship (Kilowatt)	Donkey Man		Oiler		Wiper		Total			
	Passenger	Cargo	Passenger	Cargo	Passenger	Cargo	Passenger	Cargo		
Bigger 3.000	1	1	2	1	1	1	4	3		
500 - 3.000	1		1	1	1	1	3	2		
Less 500			1			1	1	1		

TABLE 10
DECK - ENGINE PERSONNEL WHO HAS THE COMPETENCY OF LEVEL IN THE CABOTAGE VOYAGE REGIONS IN THE PASSANGER SHIPS LESS THAN 40 M

SHIP HEIGHT	MASTER AND DECK OFFICER	ENGINEER OFFICER	CREW	
			DECK	ENGINE
24 - 40M	CO-AST MASTER	MOTORMAN	ABLE SEAMAN	
LESS THAN 24	CO-AST MASTER		ABLE SEAMAN	OILER

TABLE 11
DECK - ENGINE PERSONNEL WHO HAS THE COMPETENCY OF LEVEL IN THE HARBOUR VOYAGE REGIONS IN THE PASSANGER BOATS HEIGHT LESS THAN 40 M

SHIP HEIGHT	MASTER	CREW	
		DECK	ENGINE
24 - 40M	PORT MASTER	ABLE SEAMAN	OILER
LESS THAN 24	PORT MASTER	ORDINARY SEAMAN	

TABLE 12
EQUIPPED OF FISING VESSELS

SHIP SROS TONILATO	FISKIP VESSEL CAPTAIN	ABLE SEAMAN	ORDINARY SEAMAN	OILER	LUIPER
300-700	1	1	1	1	1
100 - 299	1	1		1	
50 - 99	1		1		
LESS 50	1		1		

TABLE 14
EQUIPPED OF TUG BOATS

HARBOUR VOYAGE (DECK PERSONNEL)				
SHIP GROSS TONILATO	COAST MASTER	ABLE SEAMAN	ORDINARY SEAMAN	TOTAL
Bigger Than 750	1	1	2	4
100 - 750	1	1	1	3
Less Than 100	1		1	2
HARBOUR AND CABOTAGE VOYAGE (Engine Personnel)				
TOWER OF THE ENGINE (KW)	ENGINEER	OILER	WIPER	TOTAL
Bigger Than 500	1	1	1	3
370 - 500	1	1		2
Less Than 370	1			1

TABLE 15
EQUIPPED OF HAWSER

ABLE SEAMAN	ORDINARY SEAMAN	TOTAL
1	1	2

TABLE 16
COMMUNICATION OFFICER AND OPERATORS
(Ship Suitable For GMDSS)

TYPE OF LICENSE	RADIO - ELECTRONIC OFFICER	GENERAL OPERATOR	RESTRICTED OPERATOR
A1 VHF STATION FROM COAST 20 - 30 SEA MILE			
A2 MF STATION FROM COAST 100 SEA MILE	1		
A3 INMERSAT SATELLITE COVERAGE AREA 70N - 70 S MERIDIANS	1		
A4- A1 - A2 - A3 OUT REGIONS	1		

TABLE 17
RADIO OFFICERS - OPERATIONS
 (Ships Suitable For GMDSS)

TYPES OF LICANSE VOYAGE REGIONS	RADIO OFFICER	RADIO TELEPHONE OPERATOR	RESTRICTED RADIO - TELEPHONE OPERATOR
PANAUGER SHIPS THAT SET SAIL MORE THAN 16 HOURS FOLLOWING THE TWO HARBOURS AND CARRY 250 OR MORE PASSANGERS	2		
OTHER PASSANGER SHIPS	1		
CARGO SHIPS BIGGER THAN 1600 GT	1		
500 - 600 GT CARGO SHIPS		1	
300 - 449 GT CARGO SHIPS			1