Project Design matrix for Implementation Study　　　　　　　　　:

ITUMF　　　　　　　　　　　　　　MSTC　　　　　　　　　　　　　　　　1999　12　17

2000　4　1　　2005　3　31

		MOU	
	PSC		
ITUMF　MSTC	ITUFM　STCW95 MSTC　STCW95 STCW95	ITUMF MSTC	
ITUMF ITUMF	1. 2-a　STCW95 1. 2-b　STCW95 1. 2-c 1. 2-d　STCW95	1. 2-a ITUMF 1. 2-b 1. 2-c　　　　　ITUMF	STCW
ITUMF	3-a 3-b 3-c 3-d 3-e ITUMF	3-a　　　　　　ITUMF 3-b 3-c ITUMF 3-d 3-e	
MSTC	4-a MSTC 4-b MSTC 4-c MSTC	4-a 4-b 4-c	

76

			ITUMF
1-1 STCW95	ITUMF JICA ITUMF MSTC		ITUMF
1-2 STCW95 TRB	ITUMF MSTC		
1-3 STCW95			
1-4			
2- STCW95			

2-2 　STCW95			2-2
2-3 			2-3
3-1 			3-1
3-2 			3-2
3-3 			3-3
4-1 MSTC 　STCW95			4-1 MSTC 　STCW95

4-2 NSTC		4-2 NSTC
4-3 I TUNF		
4-4		

Project Design matrix (Ver.2)　　　　2002　10　22

　　　　　　　　　　　:

　　　　　　　　　:

　　　　:　　　　　　　　　　　　　　　　　　(ITUMF) /　　　　　　　　　　　　　　(MSTC)

　　　　　　:2000　4　1　　2005　3　31

		PSC	MOU	
ITUMF　　　　　　　　　　　　　　　　　　　　MSTC		ITUMF　STCW95 STCW95 MSTC　　　　　　　　　　　　SHS ERS STCW95	ITUMF MSTC	
ITUMF 　ITUMF		1.2-a　STCW95 1.2-b 1.2-c　STCW95	1.2-a　ITUMF 1.2-b 1.2-c　　　　　　　　　ITUMF	STCW
ITUMF		3-a 3-b 3-c 3-d 3-e　ITUMF	3-a　　　　　　　　　ITUMF 3-b 3-c　ITUMF 3-d 3-e	
MSTC		4-a　MSTC 4-b　MSTC 4-c　MSTC 4-d　SHS　　ERS	4-a,d 4-b,d 4-c	

		ITUMF	ITUMF
1-1	* JICA	――――	
1-2	* 120	356,160,000	
1-3	*MSTC	UPS	
1-4	ITUMF MSTC		
2-1		OHP	
2-2	… PDM		
2-3		US$304,687	
3-1		US 1 120 36,563,000	
3-2		5 / 10 / 0.4M/M / 0.4M/M / 0.4M/M	
3-3		( )0.5M/M / 0.5M/M / 1.0M/M / 1.0M/M / 1.0M/M / 1.0M/M	
4-1 MSTC		1.0M/M	
4-2 MSTC		TL44,900 / 1US$140,000	
4-3		8	

8

Table of Achievement

Narrative summary	Objectively Verifiable indicators	Achievements	Important assumptions	Reality checks on important assumptions
Overall goal Safe operation of Turkish merchant vessels in world-wide basis is enhanced.	- Accident cases Turkish seafarers. - Number of cases of PSC (Port State Control) of Turkish vessels.	It is early to monitor the effectiveness of achievement for Turkish fields		
Project Purpose ITUMF and MSTC produce educated or refreshed seafarers who meet international standards	- Number of curriculum and lectures in accordance with STCW95 in ITUMF. - Number of curriculum and lectures in accordance with STCW95 in MSTC. - Success rate of maritime oceangoing competency	*Some research were carried out by research assistants &Lecturers. *ITUMF is still on progress .(graduates got the opportunity to be trained in E/R simulators) *ITUMF: students were benefited from the opportunities of partly MSTC advance courses. *ITUMF is still in progress to establish infrastructures & properties. *MSTC: All related courses in accordance with STCW were established and we still are on implementation in an advanced manner. *MSTC: 13 different courses were established for the industry. 3340 trainers were graduated from the MSTC courses .New infrastructure & properties were established such as fire-fighting ,etc. *MSTC: Fraudulent certificate that were obtained before were stopped & the real courses are initiated.	Demand for seafarers sustains. Associated cooperation of Turkish merchant maritime sector is encouraged.	

Outputs			Turkish merchant maritime sector is continuously attractive for students.	Improvement Techniques & Evaluation criteria are not defined in detail in STCW95, therefore further assessment is needed at university level.
1.Education and training in Deck Department of ITUMF is improved with international standards.	1.2-a Syllabus in accordance with STCW95. 1.2-b Curriculum in accordance with STCW95. 1.2-c Utilization rate of equipment introduced by the Project. 1.2-d Assignment of instructors with competency satisfying STCW95.	1. Not yet. In progress. 1.2.c Not yet. 1.2.d Nothing	The content of STCW95 does not change fundamentally.	Demands for seafarers sustains? Nationally decrease but internationally increased.
2. Education and training in Engine Department of ITUMF is improved with international standard		2.Not yet. In progress.	Administration of ITUMF and MSTC is secured. ITMF is continuously attractive for the high school graduates.	
3. Research capacity concerning maritime safety management in ITUMF is enhanced.	3-a Number of research activities and reporting concerning maritime safety management. 3-b Utilization rate of introduced equipment for research use. 3-c Number of presented research works inside and outside of Turkey. 3-d Number of research reports carried on the internationally established journals . 3-e Number of international meetings held by ITUMF	3. b 50% 3.C .7 inside 27 outside	Counterpart personnel who have received technology transfer remain in the Project. Equipment is supplied and arrived as planned. Cooperation from private maritime transportation companies regarding on-board training can be obtained continuously.	
4. Re-education and refreshment training for existing seafarers in MSTC is improved and expanded in accordance with international standards.	4-a Number of re-education and refreshment training courses in MSTC. 4-b Number of participants to refresher and updating training courses in MSTC. 4-c Success rate of participants to re-education and refreshment training courses in MSTC in maritime competency examination.	4.a.13 different courses 4.b.3340 trainees (by the end of September 2002) 4.c.95%		
			Precondition Turkish government is willing to conduct the Project and have no objection.	

Activities	Achievements	Inputs	Actual inputs
1-1 Review and improve the curriculum of Deck department ① Analyze the existing curriculum and teaching method. ② Improve the curriculum and teaching method in accordance with STCW95. ③ Utilize audio-visual teaching equipment.	1.1.1 No (Due to recent updating National Legislation) 1.1.2 No (Due to recent updating National Legislation) 1.1.3 Yes (but not enough)	**Turkish side** *Assignment of 2~3 Counterparts to each long-term experts. *Land, buildings and	**Turkish side** *1.2Million USD from State Planning Organization of Turkey

1-2 Review and improve on-board training curriculum. ① Analyze on-board training curriculum. ② Establish on -board training curriculum in accordance with STCW95. ③ Introduce the TRB(Training Record Book) and other training materials for on-board training. 1-3 Review and improve the evaluation method of students' skills after education and training Deck department. ① Analyze the existing evaluation method. ② Improve the evaluation method in accordance with STCW95. 1-4 Introduce curriculum utilizing ship-handling simulator. ① Set up simulator and other peripheral equipment. ② Improve the existing curriculum to fit in the education and training utilizing simulator. ③ Introduce the new curriculum utilizing simulator. ④ Establish the criteria of evaluation for the education and training utilizing simulator. ⑤ Training instructors for the education and training utilizing simulator. ⑥ Train staff for management , operation and maintenance of simulator. ⑦ Train staff for development and up-date if software of simulator. ⑧ Start the education and training utilizing simulator. 2-1 Review and improve the curriculum of Engine department ① Analyze the existing curriculum and teaching method ② Improve the curriculum and teaching method in accordance with STCW95. ③ Utilize the audio-visual teaching equipment. 2-2 Review and improve the evaluation method of students' skills after education and training in Engine department. ① Analyze the existing evaluation method. ② Improve the evaluation method in accordance with STCW95. 2-3 Introduce curriculum utilizing engine room studies. ① Set up simulator and other peripheral equipment. ② Improve the existing curriculum to fit in the education and training utilizing simulator. ③ Introduce the new curriculum utilizing simulator. ④ Establish the criteria of evaluation for the education and training utilizing simulator. ⑤ Train instructors for the education and training utilizing simulator. ⑥ Train staff for management, operation and maintenance of simulator. ⑦ Train staff for development and up-date of software of simulator. ⑧ Staff the education and training utilizing simulator. 3-1 Enhance research activities concerning maritime safety technology. ① Study and analyze the hazardous areas of sea traffic in the water near Turkey. ② Understand the evaluation skill for navigational safety by utilizing simulator. ③ Understand diversified applied utilization of ship-handling simulator. 3-2 Enhance research activities concerning human error. ① Assume the occurrence of human error in the watch-keeping operation in a bridge, analyze its mechanism and understand the countermeasures. ② Assume the occurrence of human error in the watch-keeping operation in a engine room, analyze its mechanism and understand the countermeasures. 3-3 Enhance research activities concerning environmental effect on maritime activities. ① Understand the situation of sea pollution caused by vessels and the	prepared . But improvement is needed. 1.3 No activities. 1.4.1 Setting -up the simulator is completed. It shall be improved. 1.4.2 Already prepared. 1.4.3 Already prepared and waiting for the official changes. 1.4.4 Already prepared and used. 1.4.5 Already done and there is planned future training. 1.4.6 Only for operation. 1.4.7 1 counterpart partly trained. 1.4.8 Not yet 2.1.1 Analyze the existing curriculum and teaching method was completed. 2.1.2 He is still in progress but not competed satisfactory. (Improvement of the curriculum is in progress. However there are problems with the implementation of the teaching methods such as maintenance, diesel engine lab, automatic control lab and so on) 2.1.3 Not satisfactory due to the resources and need of staff such as projector, computers, etc. 2.2.1 Comments: The working "skills " should be replaced by "proficiency". Currently, ITUFM does not have enough infrastructures for evaluation, such as labs and workshops. 2.2-2 No activities. 2.3.1 Completed. However shortage of workstations is creating a big difficulty in fully utilization of ERS in Engine Department. 2.3.2 Partly achieved 2.3.3 Still in progress.(22.5%) 2.3.4 In progress 2.3.5 Completed satisfactory. 2.3.6 Partly achieve. 3.1.1 Done 50% 3.1.2 Not yet 3.1.3 Not yet 3.2.1 Not done so far. Planed to carry out next semester (SHS was installed very recently) 3.2.2 Initial stage. Partly achieved. 3.3 Still continuous. - Early waning system equipment needs to improve. -Measurement and analysis still continuing. -60% is completed and improvement of computer specification is needed (CFD)	MSTC. *Expenses for construction of building for installing the Equipment provided by Japanese side. *Salary of the staff of ITUMF and MSTC. *Operational and running cost. *Assignment of computer technician. *Improvement and u-- dating of simulators. Japanese side *Dispatch of long-term experts -Chief advisor -Maritime Education (Navigation) -Maritime Education (Engine) -Training Management -Maritime Research of Safety Management -Coordinator *Dispatch of Short-term experts -Navigation -Engine -Maritime Research on Safety Management -Simulation System *Provision of equipment -Ship-handling simulator, engine room simulator and peripheral equipment. -Audio-visual equipment, models, references. *Receiving of Turkish counterparts for training in Japan.	building) MSTC building Japanese side *Ship handling simulator *Engine room simulator *UPS for engine simulator *Liquid cargo handling simulator *Software for Fluid analysis *Additional equipment of Engine room Simulator *OHP for AV based education *Lap-top computer for AV based education *Projector for AV based Education *Computer for Fluid Analysis Equipment to measure Eyeball Movement *5 long term experts. *10 short term experts. -SHS 0.4M/M -ERS 0.4M/M -Equipment Planning 0.4M/M -Research for safety management E.D 0.5M/M -Maritime research 0.5M/M -SHS 1.0M/M -ERS 1.0M/M -Maritime safety management 1.0M/M -Human Error 1.0 M/M -ERS training 1.0M/M *Local Cost 44,900 million TL 140,000 USD * 8 Counterparts have trained in Japan * this item was not included in PDM version 1

Assume the occurrence of sea pollution in the water near Turkey and understand the countermeasures.			

4-1 Review and improve the curriculum of re-education and refreshment training fir existing seafarers in MSTC.
    Analyze the existing curriculum and teaching method.
    Introduce the new curriculum utilizing simulator.
    Establish the criteria of evaluation for the education and training utilizing simulator.
    Train instructors for the education and training utilizing simulator.
    Start the education and training utilizing simulator.
	4.1.1 Completed
	4.1.2 Completed
	4.1.3 Yes (but not enough)		

4-2 Introduce the curriculum utilizing ship handling and engine room simulator in MSTC.
    Improve the existing curriculum to fit in the education and training utilizing simulator.
    Introduce the new curriculum utilizing simulator.
    Establish the criteria of evaluation for the education and training utilizing simulator.
    Train instructors for the education and training utilizing simulator
    Start the education and training utilizing simulator.
	4.2.1 Completed (BTM/BRM)
	4.2.2 Completed (BTM/BRM)
	4.2.3 Completed (BTM/BRM)
	4.2.4 Yes (partly completed) need more.
	4.2.5 Not yet		

4-3 Review and improve the curriculum of re-education and refreshment training for the graduates of ITUMF. Select and set up education and training concerning the advanced ship-handling skills. (Ship-handling of special vessels such as Tanker , Chemical Tanker, Liquid Gas Carrier, Approach ship-handling of big vessels to the berth, Ship-handling for leaving and approach to berth).	4.3 Not yet 4.3 The concept is changed not only "The graduate of ITUMF", but all Turkish seafarers and also foreign seafarers (for near future)		
4-4 Improve the teaching materials and references.	4.4 Yes, 5% but not enough (need more)		

Problems	Cause of Problems	Tentative action	Necessity of reporting JICA HQ	Modification or revise of PDM
1. Almost all laboratory facilities and computer systems are not enough for both students and staff.	1. Lack of number and quality of equipment and facility.	1-1 Budget allocation should be prepared for the establishment of laboratories. 1-2 Be arrange cargo stowage laboratory in ITUMF. 1-3 Delivery of new computer and one projector is necessary. 1-4 Stand alone units for self study can be provided	1.Must be reported	1.-1A statement such as "Enhancement of ITUMF fundamental Labs is necessary " should be marked. 1-2 In PDM there is a statement for "evaluation & monitoring performance". It should be amended as "established &Enhancement of Labs.
2.Current Data Analysis of Turkish Maritime Education is not exist	2. Long term experts don't give this item priority.	2. We should start collect data from the MET institution in Turkey as well as to collect data from Turkish industry in order to see what we are.		
3. ERS has design problems	3.Maker did not produce according to the original specifications.			
4.ERS courses can not be implemented effectively or efficiently.	4.There are only 6 work stations. Students can not make self exercise.	4.Delivery of work station or PC bases simulator	4.Necessary	
5.On board training to be provided on Boaro faculty vessel.	5.Trainig Vessel is not functional	5-1 Check the feasibility to use. 5-2 Repair immediately	5.Report	

6.Problems with SHS some technical Problems.(software)	6.Cause of Problems of SHS : software design .No operation and function realism us provided by manufacture.	6.JICA should warn the manufacture in order to correct the software in international standers.	6.JICA will consider for future cooperation on SHS for research and education.	
7.Deck & Engine Depts. Curriculums to be updated as per STCW95.	7.Since 1997 Deck and Engine curriculums have not been changed.	7.New national legislation to be implemented		
8.Maintenance of simulators(warranty was expired)	8-1 Manufacture's maintenance program is too expensive. 8-2 ITUMF do not have electronic technician/programmers	8-1ITUMF should look for new hiring of Research assistants and technicians. ITUMF need to look ways of allocating budget for workshop. 8-2 Proposal should be made ton JICS for allocation of maintenance budget until the end of JICA-ITUMF project	8. Necessary	
9.Software design activities have not stated yet in SHS.	9.There is not long term experts for software of SHS	9.A long term expert should be dispatched as soon as possible.	9.Long -term Expert on SHS software is on the process of recruitment by JICA.	
10.Teaching method in classrooms were not enhanced or improved.	10.CBT facilities are not satisfactory. Other A/V equipment are not enough and computers in classroom.	10.CBT to be provided(budget allocation)	10.It is already written in PDM, it is necessary to report.	
11-1 Research activity facilities are not enough . 11-2 Research production is not enough.	11-1 Facility of laboratories for Environmental Research activities should be improved. 11-2 Many of computers are not enough to run/read Bosphorus project. Also detailed equipment do not exist at all.	11.The scope of research should be enlarged.	11.Necessary	

12.ITUMF lost his direction between university education and license training. Curriculums show to much respect to IMO model Course.	12.The existing curriculum of Deck Department has only vocational perspective to educate students for ships officer.	12-1The new curriculum concept should be carried out . 12-2 The deck department should offer elective majors to students in upper class.	12.Objecttively verifiable indicators of existing PDM relating with STCW should be modified. Because STCW is on minimum standards	12-1 Indicator section of PDM modification : Curriculum in according with advanced MaritimeTechnology. Such as (maritime electronics) 12-2 STCW95 and (add) Subjects or Advanced (navigational technology)

PDM	PDM	
1999　12　17　R/D	2002　10　22	
		PDM
Safe operation of Turkish merchant vessels in world-wide basis is enhanced.		
（　　）		
-Accident cases Turkish seafarers.　Number of cases of PSC (Port State Control) of Turkish vessels.	-Accidents cases ~~caused~~ by Turkish seafarers.　-Number of cases of PSC (Port State control) ~~due to Turkish seafarers' quality.~~	-　　　　　，　-
-ITUMF and MSTC produce educated or refreshed seafarers who meet international standards.	~~-ITUMF establishes educational system to produce educated seafarers and MSTC produces refresher and up-dated seafarers~~ that meet international standards.	-　ITUMF(　　　　　　)　MSTC(　　　　　　)
（　　）		
-Number of curriculum and lectures in accordance with STCW95 in MSTC	~~-Newly designed educational system including both vocational and academic program which exceeds STCW95.~~ ~~-SHS and ERS courses are established for licensed seafarers in MSTC.~~	-STCW95　-
1.Education and training in Deck Department of ITUMF is improved in accordance with international standards. 2.Education and training in Engine Department of ITUMF is improved in accordance with international standards.　（　　）1,2-a Syllabus in accordance with STCW95. 1,2-b Curriculum in accordance with STCW95	1,2-a ~~Curriculum and syllabus in accordance with STCW95 and advanced maritime technology.~~	STCW95
4.Re-education and refreshment training for existing seafarers in MSTC is improved and expanded in accordance with international standards.　（　　）	4.~~Refresher and up-dated courses~~ for existing seafarers in MSTC is improved and expanded in accordance with international standards.	STCW95

4-a Number of re-education and refreshment training courses in MSTC. 4-b Number of participants to re-education and refreshment training courses in MSTC. 4-c Success rate of participants to re-education and refreshment training courses in MSTC in maritime competency examination. ( ) 4-a List of re-education and refreshment training courses in MSTC. 4-b List of participants to re-education and refreshment training.	4-a ~~Number of refresher and up-dated courses~~ in MSTC. 4-bNumber of participants to ~~refresher and up-dated~~ training courses in MSTC. 4-c Success rate of participants to ~~refresher and up-dated courses~~ in MSTC. 4-d Number of SHS and ERS courses. 4-a,~~d List of refresher and up-dated~~ courses. 4-b,~~d List of participants to refresher and up-dated~~ courses.	STCW95 STCW95 ,
1-3 Review and improve the evaluation method of students' skills after education and training in Deck department. 2-2 Review and improve the evaluation method of students' skills after education and training in Engine department.		STCW95
	1-3 ~~Establishment and enhancement of laboratories in Deck department.~~ 2-2 ~~Establishment and enhancement of laboratories in Engine department.~~	PDM
3-2 Enhance research activities concerning human error.	3-2 Enhance research activities concerning human ~~factor.~~	
4-1 Review and improve the curriculum of re-education and refreshment training for existing seafarers in MSTC.	4-1 Review and improve the curriculum if ~~refresher and up-dated courses~~ for existing seafarers in MSTC.	STCW95
4-3 Review and improve the curriculum of re-education and refreshment training for the graduates of ITUMF.		ITUMF

2001.Jan			Computer for Fluid Analysis	2 sets of Personal Computer	1	10,112	$	Data Teknik
2001.Mar			Projector for AV based education	Sony VPS-CS 10	3	4,625	$	Empati Bilisim
2001.Mar			Lap-top Computer for AV based education	Karizma 750-G3	2	3,639	$	Data Teknik
2001.Mar		OHP	OHP for AV based education	3M M9400	2	807	$	Data Teknik
2001.Mar			Additional Equipment for Engine Room Simulator	1 Local Operation Station 2 Student Workstation 1 Server Station	1	138,060	$	Antares Denizcilik
2001.Mar			Software for Fluid Analysis	Star-CD fir Prostar for 2 active CPUs	1	9,506	$	Infotron
2001.Mar			Equipment to measure the Eyeball Movement	Eye Mark recorder Eye Mark Detection Unit, Controller, Analyzer	1	68,000	$	Itochu
2001.Mar			Liquid Cargo Handling Simulator	Server Workstation x 1 Student Workstation x6	1	69,000	$	Retelmak
2001.Mar		UPS	UPS for Engine Room Simulator	Tuncmatik Powerline Compact LT 2000	4	938	$	Destek
2001.Apr			Engine Room Simulator	Norcontrol Engine Room Simulator	1	135,660		
2002.Mar			Ship-Handling Simulator	Ship-Handling Simulator	1	220,500		