CMOROC
IDENTIFICATION OF COMPETENCES FOR MASS OPERATORS IN REMOTE OPERATION CENTRES (CMOROC)

REQUIREMENTS

3 USE CASES
Voyages with three ship types:
- FERRY 1 HOUR VOYAGE
- FEEDER SHORT SEA VOYAGE
- BULKER LONG DISTANCE

14 MAIN PROCESSES IDENTIFIED
6 Core Processes:
- PORT VOYAGE PLANNING & CONTROL
- SEA CARGO OPERATIONS
- PORT NAVIGATION
- ENGINEERING OPERATIONS
- MAINTENANCE
- MALFUNCTIONS & EMERGENCIES

4 Management Processes:
- M.1. ORGANISATION
- M.2. GENERAL MANAGEMENT
- M.3. RISK MANAGEMENT
- M.4. QUALITY MANAGEMENT

4 Support Processes:
- S.1. HUMAN RESOURCES
- S.2. LEGAL ASPECTS
- S.3. AUTOMATION SYSTEMS
- S.4. ECONOMIC ASPECTS

OVER 40 EXPERTS IN WORKSHOPS AND INTERVIEWS
- International Shipping companies
- Maritime Industry
- Scientists in the field
- International Universities

PROPOSED OPERATIONAL MODEL

38 TASK ANALYSES
By DCoS Models:
DCoS – Distributed Cooperative Human-Machine System

> ANALYSIS OF ALL RELEVANT AGENTS
> ANALYSIS OF ALL RELEVANT PROCESSES, TASKS AND FUNCTIONS
> ANALYSIS OF REQUIRED RESOURCES AND INFORMATION

4 CORE TASKS
Monitoring
Direct Control
Emergency Response Planning

5 ROLE DEFINITIONS

ROC – Remote Operation Centre

OPERATIONAL LEVEL
NAVIGATOR / ENGINEER / SYSTEM ADMINISTRATOR

MANAGEMENT LEVEL
SENIOR NAVIGATOR / SENIOR ENGINEER

5 COMPETENCE TABLES

for ROC Operators

5 STCW TABLES CHECKED
for required competences

COMPETENCE-BASED CURRICULUM

MASS Operators - Basic Program

FOR ALL OPERATORS (NAVIGATORS / ENGINEERS / SYSTEM ADMINISTRATORS)

Module Fields of Competences (Levels 3-4)

MASS Operation 1
Understand MASS system. Operate and interpret the performance.

MASS Safety & Security 1
Contribute to the specific safety and security demands of a MASS system.

MASS Management & Administration 1
Work as MASS operator within legal requirements.

Practical Training 1
Understand the environment and operations in ROC and on board of a MASS.

FOR NAVIGATORS

MASS Navigation
Take responsibility on navigation of a MASS.

MASS Monitoring
Conduct a safe monitoring watch for a fleet of MASS.

MASS Cargo & Mission Operations 1
Monitor cargo and mission operations and seaworthiness of MASS.

FOR ENGINEERS / SYSTEM ADMINISTRATORS

MASS Engineering Operations 1
Operate all technical systems and remote maintenance.

MASS Automation and Control
Operate all automation and autonomy systems and remote maintenance.

MASS Operations Monitoring
Monitor the operations of a fleet of MASS.

MASS Senior Operators - Advanced Program

FOR ALL SENIOR OPERATORS (SENIOR NAVIGATORS / SENIOR ENGINEERS)

Module Fields of Competences (Levels 4-5)

MASS Operation 2
Manage a MASS system. Optimize MASS performance.

MASS Safety & Security 2
Develop safety and security systems. Maintain safe and secure operations of a MASS system.

MASS Management & Administration 2
Develop and improve the entire MASS system within legal and economic demands.

Practical Training 2
Evaluate performance and critical conditions in a ROC and on board of a MASS.

FOR SENIOR NAVIGATORS

MASS Navigation & Control
Manage MASS voyages. Take direct control under any condition.

MASS Cargo & Mission Operations 2
Plan and manage operations with cargo, passengers or on missions. Control seaworthiness of MASS.

FOR SENIOR ENGINEERS

MASS Engineering Operations 2
Manage all technical systems and automation. Improve reliability, availability, performance and resilience.

MASS Operations Control
Manage a fleet of MASS. Take direct control on demand.

18 MODULE DESCRIPTIONS
resulting eight Operators Modules and five Senior Operators Modules