

Maritime Training

I Standards for Approval

Standards for the Approval of Maritime Simulators and Maritime Simulator Centres



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Table of Contents

Section	Content	Page
A.	General	3-19
B.	Approval Requirements	4-19
C.	Approval Process	4-19
Annex A	Standard for Quality Management Systems of Maritime Simulator Centres	
Annex B	Documentation Requirements for the Approval of Maritime Simulators and Maritime Simulator Centres	
Annex C	Application for the Approval of Maritime Simulators and Simulator Centres	
Annex D	Equipment Lists*	

* to be obtained on request

A. General

1. Scope of application

These standards are applicable for the approval of maritime simulators and maritime simulator centres in accordance with the requirements of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW Convention) and the Seafarer's Training Certification and Watchkeeping Code (STCW Code).

The approval of maritime simulators and maritime simulator centres may be performed by GL on behalf of an Administration having authorized GL to conduct such approval activities on their behalf.

The certificate of approval shall document that the maritime simulator or maritime simulator center fully covers the applicable learning objectives to meet the defined standards of competency.

2. Definitions

Company means the manufacturer or operator of maritime simulators.

Maritime Simulator means a simulator which is used for training, assessment of competence or demonstration of continued proficiency in maritime education. Maritime simulators basically are divided in four different functions: simulators for navigational (bridge) operation, engine operation, cargo handling and radio communication.

Different classes of maritime simulators are distinguished regarding their capabilities:

- *Full mission simulator* means a simulator which is capable of simulating a complete environment, including capability for advanced manoeuvring and pilotage training in restricted waterways. By this being able to simulate complex scenarios of the shipboard operation and marine environment.

This implies a fully equipped ships bridge with high quality visuals, sophisticated mathematical ship and environment models, a sound system, numerous playing area's, multiple own and target ship models.

- *Multi task simulator* means a simulator which is capable of simulating a total navigation environment, but excluding the capability for advanced restricted-water manoeuvring. The field of view of the visuals should preferably be at least the arc of the masthead and side navigation lights.

By this the simulator is able to reflect functional requirements of all or part of the shipboard operation and the marine environment and is not to be used for training and assessment of complex scenarios.

- *Limited task simulator* means a simulator which is able to reflect particular instruments or limited scenarios. It is capable of simulating an environment for limited (blind) navigation and collision avoidance training.

This means the simulator is equipped with an instructor station and a number of own ship cubicles with radar and limited instrumentation.

- *Single task simulator* means a simulator which is able to reflect functional requirements. A desk-top simulator utilizing computer graphics to simulate particular instruments, or to simulate a limited navigation / manoeuvring environment but with the operator located outside (birds-eye view) the environment.

Maritime Simulator Centre means an institution or company which operates one or more maritime simulators for mandatory and non-mandatory training for the maritime industry.

Mandatory simulator based training means training and assessment of competence in compliance with the applicable performance standards of the STCW Convention for use of radar and automatic radar plotting aid (ARPA).

Non-mandatory simulator based training means training which is used as a mean to demonstrate competence (assessment) in other competencies than the use of radar or ARPA. Such forms of simulation include, but is not necessarily limited to:

- Bridge Operation
- Machinery Operation
- Radio Communication
- Cargo Handling

Quality standards system consists of the organizational structure, procedures, processes and resources needed to implement the management functions required to achieve the stated objectives.

Non-conformity means the non-fulfilment of a specified requirement.

3. References

- ISO 9001 - International standard 'Quality management systems - Model for quality assurance in design, development, production, installation and servicing';
- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW Convention);
- Seafarer's Training, Certification and Watchkeeping Code (STCW Code);
- IMO Resolution A.823(19);
- IMO Equipment Performance Standards.

B. Approval Requirements

1. Quality standards system

1.1. Maritime Simulators

Maritime simulators to be approved under these standards shall be manufactured within a quality standards system.

GL recognizes one of the following options for the certification of a quality standards system:

Option 1: Certification on the basis of ISO 9001 standard, certified by Germanischer Lloyd Certification GmbH.

Option 2: Certification on the basis of ISO 9001 certified by an accredited certification body. In this cases GL reserves the right to perform a verification audit of the company's quality standards system.

1.2. Maritime Simulator Centres

Maritime simulator centres to be approved under these standards shall be organized and operated within a quality standards system.

GL recognizes one of the following options for the certification of a quality standards system:

Option 1: Certification on the basis of ISO 9001 standard, certified by Germanischer Lloyd Certification GmbH.

Option 2: Certification on the basis of ISO 9001 certified by an accredited certification body. In this cases GL reserves the right to perform a verification audit of the company's quality standards system.

Option 3: Certification on the basis of a standard equivalent to ISO 9001 recognized by GL (see Annex All Standard for Quality Management Systems of Maritime Simulator Centres). In this cases GL will perform a verification audit of the company's quality standards system.

2. Applicable standards

The approval shall be based on the standards and requirements defined by the company which manufactures or operates maritime simulators. These shall be in compliance with the applicable standards of the STCW Convention for maritime simulators, as well as the national requirements for maritime simulators and the applicable IMO model course requirements.

All activities required for the approval of maritime simulators shall be based on the stipulations stated directly in the applicable standards.

C. Approval Process

1. General

The information acquired during the approval process is considered and treated as confidential.

Maritime simulators shall only be approved for companies who have implemented a quality standards system certified as defined in section B 1.1 above.

Maritime simulator centres shall only be approved after successful implementation of a quality standard system as described in section B 1.2 above.

Following modes of approval are distinguished:

1. Type Approval of maritime simulators. The manufacturer of maritime simulators and simulator components demonstrates the full compliance of the produced hard- and software with the applicable standards.
2. Approval of maritime simulator centre. The institution or company operating one or more maritime simulators for maritime training purposes demonstrates the ability to provide maritime training in full compliance with the applicable standards. This includes the installation of type approved maritime simulators in combination with type approved equipment as well as training conditions and facilities.

The approval process is divided into the following parts:

- Document review including assessment of the test program established by the company; and
- Verification of the simulator's performance by test trials based on the test program.

Note

In case of the approval of maritime simulator centres the framing conditions

- training objectives,
- training and assessment procedures,
- qualification requirements for instructors and assessors,
- procedures for maintaining and updating of the proficiency of instructors and assessors, and
- documentation requirements and procedures

shall be subject to examination during the verification audit even if they are integrated part of the company's quality management standards system.

2. Contractual procedure

The approval of maritime simulators shall be provided under formal contractual arrangements.

A company desiring to have a maritime simulator approved by GL shall submit a written request by completing the form "Application for the Approval of Maritime Simulator or Approval of Maritime Simulator Centre" (Annex C) together with the pertinent enclosures.

On receipt of this request and after a check of completeness GL shall send the company a written confirmation stating the acceptance of the request.

The company's request and its acceptance by GL, contractually formalises GL's activities for the approval process, which shall be performed in accordance with these standards.

3. Document Review

For each maritime simulator or maritime simulator centre to be approved, the company shall submit to GL a full set of documentation as specified in the table "Documentation requirements for the Approval of Maritime Simulators" (Annex B).

Apart from the required documentation other documents considered to be important for the approval process shall be submitted to GL upon request.

Upon receipt of the documentation, GL shall commence the document review process and shall communicate its results to the company. In case any non-conformities are detected during the document review, the company has to ensure that these will be rectified to the satisfaction of GL, before continuing with the approval process.

4. Verification

The verification of the simulator's performance shall be conducted by qualified GL staff.

The test trial programmes used for the approval of maritime simulators and maritime simulator centres shall be prepared by the company in agreement with GL based on the documentation and in compliance with the applicable requirements STCW Convention and Code.

The company's personnel shall closely co-operate with the GL staff and shall provide free access to all relevant facilities and documentation.

During the verification process, the company shall demonstrate that the maritime simulator or/and the installed equipment of the maritime simulator centre is capable to comply with the IMO equipment performance standards.

In case of maritime simulator centres the company shall in addition to the test programmes demonstrate that the quality standard system is fully implemented and effective. It shall be demonstrated that the documented procedures are followed and that they are in compliance with the STCW Convention and Code

The verification shall consist of:

- an opening meeting with the company's staff in order to agree on the scope and objectives of the verification and to confirm the procedures for the test trial;
- obtaining objective evidence of the simulator's effective functioning as defined in the documentation in compliance with the STCW Convention and Code.
- in case of maritime simulator centres also obtaining objective evidence that the documented procedures for demonstrating and evaluating competence acc. to the STCW Convention and Code are implemented and followed.
- a verification of the maritime simulator in order to obtain objective evidence of the effective implementation of the required IMO equipment performance standards;
- a closing meeting in order to present and explain the results of the verification, as well as to discuss further modification and improvements if any found to be necessary

Note:

The test trial for maritime simulators shall be performed at an appropriate location agreed between the company and GL.

The test trial and verification for maritime simulator centres shall be performed at the maritime simulator centre.

Before commencing the trial tests for the simulator's performance the individual test program shall be discussed and agreed between GL and the company.

In case any non-conformities are detected during the verification, the company has to ensure that these will be rectified to the satisfaction of GL within an agreed time-limit.

An additional verification might be required by GL depending on the nature of the non-conformities detected in order to verify whether appropriate corrective actions have been implemented for rectification of the non-conformities.

Failing to comply with the above requirement might prevent the issuance of an approval certificate.

5. Issue and validity of certificates

Upon satisfactory completion of the approval process, including document review and verification, GL shall issue a "Certificate of Approval", which shall document the compliance with the applicable standards.

In case of approval of maritime simulators the simulator's type and technical data, the applicable standards as well as the competencies for which the simulator is used for training and assessment shall be listed on the certificate.

In case of approval of maritime simulator centre the certificate of approval indicates the scope of the training and references to the requirements of the IMO/ STCW Convention and Code, which are complied with. The certificate

shall be amended by an inherent annex listing the simulator equipment installed at the simulator centre as well as the STCW convention and Code references according to which training can be conducted.

The validity of the certificate of approval shall not exceed 5 years.

6. Maintenance of Certificates

6.1 Periodical verification

In order to facilitate the periodical verification process, the company shall maintain records on modifications, upgrades and amendments to the simulators and equipment used as well as records on test trial results in accordance with the company's quality standards system during the validity period of the certificate. This documentation shall be kept readily available for verification.

6.1.1 Maritime Simulators

The manufacturer of a GL type-approved maritime simulator shall submit a summary report of the documentation referred to above under 6.1 to GL within the third year of the validity period of the certificate. GL shall assess this report and decide on the continued compliance. GL reserves the right to request additional verification.

6.1.2 Maritime Simulator Centres

Companies with a quality standards system according to Section B, 1.2 Option 1, shall provide objective evidence of continued compliance (records of modification and/or upgrades, test records etc.) during the regular audits of its quality management system.

Companies with a quality standards system according to Section B, 1.2, Option 2 above, shall provide objective evidence of continued compliance by submitting a copy of the report of the yearly external audit to GL. Within the third year of the validity period of the certificate a summary report shall be provided listing all upgrades, modifications and tests carried out after issuance of the certificate. Subject to the results of the assessment of such evidence, GL reserves the right to request for additional verifications in form of documentation or on-site.

Companies with a quality standards system according to Section B, 1.2, Option 3 above, shall provide objective evidence of continued compliance by submitting yearly a summary report to GL. This report shall follow the requirements from Annex AII "Standard for Quality Management Systems of Maritime Simulator Centres". It shall comprise the results from the Management review, internal audits, measurement and analysis of data and improvement activities. Technical upgrades, modifications and tests of the equipment shall also be documented. Subject to the results of the assessment of such evidence, GL reserves the right to request additional verifications in form of documentation review or on-site verification.

6.2 Renewal

If a company desires to have the approval of a maritime simulator or a maritime simulation centre renewed, it shall submit a written request to GL not later than 3 months prior to the expiry date of the approval certificate.

GL shall carry out an on-site verification to assess whether the performance of the simulator's or of the simulator centre is in continued compliance with the applicable standards.

The on-site verification shall be conducted by qualified GL staff, on the basis of the approval documentation and the test trial procedures, as well as considering the summary reports and documentation according to para 6.1 prepared and submitted by the company since the initial approval process. In case of need, GL reserves the right to request for additional items for the conduct of the verification.

Upon satisfactory assessment that the maritime simulator or maritime simulator centre continues to meet the applicable standards and provided that the company's quality standards system remains functioning, GL shall renew the approval.

6.3 Withdrawal

GL may withdraw the granted approval for any maritime simulator or maritime simulator centre when the company fails to correct detected non-conformities within the agreed time limit.

Furthermore, GL may withdraw the approval for any maritime simulator or simulator centre upon determination that the company has demonstrated a pattern or history of:

- Failing to comply with the applicable standards or requirements for the approval of maritime simulators and simulator centres;
- Substantial deviations from the procedures as described in the approval documentation; or
- Substantial modifications to the maritime simulator have been made without following the procedures laid down in these standards.

6.4 Reinstatement

GL shall notify the company in writing about the conditions for reinstating the approval certificate.

7. Modifications to maritime simulators

Any significant modification to an approved maritime simulator or maritime simulator centre which might affect the approval shall be promptly communicated by the company to GL.

Such information shall include all relevant documentation hereto enabling GL to verify the extent and implementation of such modifications.

In case of need, GL reserves the right to conduct an additional on-site verification in order to verify whether the simulator's performance continues to be in compliance with the applicable standards.

If GL is satisfied that the simulator's performance remains to be in compliance with the applicable standards, the simulator's approval shall remain valid to the date of expiry as stated on the approval certificate.

8. Modifications of approval requirements

Any modification to the requirements and/or the process for the approval of maritime simulators and maritime simulation centres as laid down in these standards, shall be promptly communicated to those companies whose simulators have been approved by GL.

Upon receipt of such information, the company is obliged to implement such modifications into their operational procedures and/or the simulator's equipment. The implementa-

tion has to be completed latest within the period of validity of the existing approval.

Sufficient documentation enabling GL to verify the successful implementation of such modifications shall be made available to GL upon request.

In case of need, GL reserves the right to request additional information up to conduct an additional on-site verification in order to verify whether the simulator's performance continues to be in compliance with the modified standards.

9. Responsibility

The sole responsibility for ensuring compliance with the applicable national and international standards and regulations as well as with the requirements of these standards rests with the company that manufactures a maritime simulator or which operates a maritime simulator centre..

Annex A: Standard for Quality Management Systems of Maritime Simulator Centres

A. Application

This standard contains the requirements for quality management systems of maritime simulator centres according to Standard for Approval of Maritime Simulators and Maritime Simulation centres Section B.1.2 Option 3. The requirements are based on the DIN EN ISO 9001:2000 standard.

B. Management Responsibility

1. The maritime simulator centre's management commitment

The management of the maritime simulator centre shall demonstrate its commitment to the evolution of the quality system by

- providing the recognized organization (audit body) with objective evidence to meet the legal, regulatory and customer requirements;
- establishing a quality policy which includes quality objectives;
- performing management reviews;
- providing the necessary resources to achieve the objectives, and
- systematically collecting and analyzing data for continual improvement.

2. Customer relation

To achieve customer satisfaction the management of the maritime simulator centre shall identify the expectations and needs of its customers. These factors shall be integrated into the quality system.

3. Quality policy

The maritime simulator centre's management shall define and document its policy for quality. This includes objectives for quality and a commitment for quality and continual improvement of the maritime simulator centre's quality system.

The quality policy shall be based on the maritime simulator centre's objectives as well as the expectations and needs of its customers. The maritime simulator centre's management shall ensure that this policy is understood, imple-

mented and maintained at all levels of its organization. This policy shall be reviewed at regular intervals.

4. Planning

4.1 Quality objectives of the maritime simulator centre

The management of the maritime simulator centre shall define the objectives for their training courses and research programs.

These objectives shall be in line with the policy, measurable and shall include the commitment to continual improvement. The quality objectives shall include measures to meet educational requirements.

4.2 Quality planning

The management of the maritime simulator centre shall establish, plan and document the processes needed to achieve the educational objectives. Quality planning shall include the procedures of the quality system, the resources needed and shall take into account the requirement for continual improvement. Modifications to the system shall be planned and performed under controlled conditions.

C. Administration of the Quality Management System

1. Responsibility and authority

The responsibility and authority of personnel who manage, perform and verify work affecting quality shall be defined, documented and communicated also the areas of functions and their interrelation within the maritime simulator centre.

2. Quality manager

The maritime simulator centre's management shall appoint a member of its own staff who shall have access to the highest level of management and who, irrespective of other responsibilities, shall have authority for:

- ensuring that the requirements of this rules are implemented and maintained;
- reporting on the performance of the quality system to the maritime simulator centre's management as basis for the management review and for the improvement of this quality system; and

- emphasizing and distributing the importance of customer requirements throughout the maritime simulator centre.

3. Internal communication

The maritime simulator centre's management shall establish lines of communication between all staff members to achieve all-embracing awareness of the quality management requirements and to ensure the effectiveness of the quality management system procedures.

4. Quality manual

The maritime simulator centre shall establish, document and maintain a quality management system in order to ensure that all activities (training, courses, research) are properly designed in compliance with the training objectives and/or customers demands. A quality manual shall be developed, established and maintained as a controlled document. It shall cover all requirements of these rules as well as the maritime simulator centre's objectives and policy. The structure of the documentation to be used in the quality system and any exclusions shall be defined in detail. This manual shall include or make reference to quality system procedures, which provide a detailed description of how the maritime simulator centre achieves its quality goals.

5. Document and data control

The maritime simulator centre shall establish and maintain documented procedures to control all documents and data that relate to the requirements of this rules. The control shall ensure that

- the documents and data shall be reviewed and approved for adequacy by authorised personnel prior to issue;
- modifications to documents are performed in a controlled manner by authorized personnel;
- A master list or equivalent document control procedure shall be established, which identifies the current revision status of documents. This list or equivalent procedure has to be readily available to preclude the use of invalid and/or obsolete documents or data;
- the actual valid issues of appropriate documents / data are available at all relevant locations;
- the documents remain legible, identifiable and retrievable;
- external documents are identified and their distribution is controlled;
- invalid and/or obsolete documents are promptly removed from all points of use or otherwise assured against unintended use; and

- any obsolete documents retained for legal and/or knowledge-preservation purposes are clearly identified.

6. Control of quality records

The maritime simulator centre shall establish and maintain documented procedures for preparation, indexing, filing, maintenance and disposition of quality records. These records demonstrate conformance to specified quality requirements of the maritime simulator centre. They shall be used for the evaluation of the effectiveness of its quality system. All quality records shall be legible and shall be readily retrievable. Damage, deterioration and loss of these records shall be prevented, suitable retention times shall be established.

7. Management review

The maritime simulator centre's management shall review the quality system to ensure its continuing suitability and effectiveness in satisfying the requirements of both this rules and the maritime simulator centre's policy and objectives. Such reviews shall be performed at least annually. Records of these reviews shall be maintained.

7.1 Input to the review

Input to the review shall include the following internal and external performance parameters:

- audit results (internal and independent);
- customer feedback and requirements;
- educational performance;
- changes to legislation;
- system improvement requirements;
- status of the implementation of decisions; and
- actions resulting from earlier reviews.

7.2 Output from the review

Outputs from the review shall include actions such as:

- improvements to the quality system and its training and research processes;
- improvement of customer relationship; and
- identification of resources needed.

D. Management of Resources

1. Provision of resources

The maritime simulator centre's management shall establish the resources required and ensure their availability in a timely manner for the improvement of the training and research processes for the benefit of the students, industry and other customers identified.

2 Personnel

2.1 Assignment of personnel

Personnel assigned to tasks related to educational and research processes identified in the quality system shall be competent according to international / national regulations on the basis of applicable training, skills and experience.

2.2 Training of staff

The maritime simulator centre shall identify competency requirements and provide training to fulfil such requirements for all personnel performing activities affecting the quality of training services and research activities. Records of training shall be maintained which shall include evaluation and effectiveness. The management shall improve the awareness of each individual's role in the quality system and the importance of their activities to achieve the quality objectives of maritime simulator centre.

3. Facilities

The maritime simulator centre shall establish, provide and maintain the facilities required to perform the training and research processes and to achieve the objectives which include:

- location to perform the activities and the supporting equipment;
- hardware and software; and
- supporting services.

4. Working environment

The maritime simulator centre shall establish and maintain a working environment which supports the teaching and learning activities taking into account the human and physical factors.

E. Development of Training Courses and Research Programs

1. Planning of training courses and research programs

The training or research processes shall be planned in accordance with the requirements of the quality management system and shall be documented in a suitable manner. The maritime simulator centre shall establish, as appropriate:

- the objectives for the training, programs and research activities;
- processes, resources and facilities for the realization of the objectives;
- documentation, describing organization and procedures of training and/or research;
- criteria of acceptance for the assessment of students in the course of the education process; and
- records as evidence of conformity with the planned training or research processes.

2. Processes related to the customers of the maritime simulator centre

2.1 Identification of customer requirements

The maritime simulator centre shall identify the requirements of the customer for the training or research objectives. These requirements shall also include requirements to ensure international acceptance of the training and/or research provided by the maritime simulator centre. Additionally the requirements of the administration and legal requirements shall be established.

2.2 Review of training and research requirements

The maritime simulator centre shall review the customer requirements and any additional requirements established by the maritime simulator centre to reach the objectives prior to the commitment to provide the training services to the customer to ensure that:

- all requirements for the processes and objectives of the training are defined;
- all inquiries have been clarified; and
- the maritime simulator centre has the ability to fulfill all defined requirements.

The review and any actions resulting from the review shall be recorded.

2.3 Communication with the customer

The maritime simulator centre shall establish and implement methods for communication with its customers which shall contain:

- information about training and research services provided by the maritime simulator centre;
- treatment of inquiries; and
- feedback from the customer including treatment of customer complaints.

3. Development of training courses

3.1 Development plans

The maritime simulator centre shall plan, control and verify the development of training courses and programs to ensure that specified requirements are met. The plans shall identify:

- all main steps of the development process and the responsibilities and authorities for these activities; and
- the review, verification and validation activities of each development phase.

3.2 Development input

The requirements relating to the development and planning of courses and programs shall be identified. The following sources for these requirements should be considered:

- international and national rules and regulations;
- relevant changes in industry demand and future student profiles;
- training objectives of maritime training institutes / academies
- qualifications of teaching staff;
- teaching equipment / aids;
- decisions and results from training course and research program evaluations;
- results from previous training courses and research programs; and
- pre-requisites required by more advanced training courses for which the course prepares the participant.

3.3 Development output, review and verification

Development output shall be documented in terms which can be verified by competent personnel against the input requirements. Results of verification shall be recorded.

Output shall:

- meet the input requirements;

- contain or make reference to acceptance criteria concerning knowledge, understanding, skills and competence; and
- identify those characteristics of the development that are crucial for the proper execution of the training course or research program.

The maritime simulator centre shall ensure that each training course and research program has documented evidence of:

- relevant objectives and how these objectives are to be achieved;
- the relevance of the training course or research program content to its objectives;
- the adequacy of the equipment/resources being used; and
- consistence of the objectives of different training lessons / scenarios with the training course or research program objectives.

3.4 Validation

A test training course shall be performed prior to the operational phase to verify and validate whether all requirements are met. Adequate records shall be prepared.

3.5 Control of development changes

All development changes shall be identified, documented, reviewed and approved by authorized personnel before their implementation.

4. Purchasing

4.1 Purchasing of materials and services

The maritime simulator centre shall control its purchasing activities to ensure that materials and services which might affect the quality of training courses or research programs meet the specified requirements. Sub-contractors shall be selected on their ability to fulfil the specifications. Records of all approved sub-contractors shall be maintained. The following purchasing information has to be documented, where appropriate:

- approval or qualification requirements for materials, services and personnel; and
- quality management system requirements for sub-contractors.

4.2 Receiving inspection and testing

The maritime simulator centre shall identify and implement verification methods to ensure that incoming materials or purchased services are in conformance with the requirements specified in the purchasing document. The intentions to carry out the verification at the sub-contractor's premises shall be stated in the purchasing information.

F. Realization of Training Services

1. Frame conditions

1.1 Information for prospective participants

The maritime simulator centre shall provide clear and accurate information on all available admission routes and on any associated requirements for entry to training courses as well as pre-entry guidance and support.

1.2 Participant Admission

Individual admission of participants shall take place under controlled conditions. Therefore the maritime simulator centre shall establish and maintain documented procedures, ensuring that the participants fulfil the required criteria.

The data shall be verified and recorded.

2. Admission of lecturers

The maritime simulator centre shall define and document procedures which ensure that only instructors (resident as well as contracted non-resident) with an appropriate attitude, competence, skills and knowledge required by the position are employed.

3. Evaluation of simulator training

The maritime simulator centre shall define and document procedures which ensure that teaching and performance of resident and non-resident lecturers are evaluated regularly during and after training courses. These procedures shall include arrangements for dealing with unsatisfactory lecturing and lecturers.

4. Teaching

The maritime simulator centre shall identify and plan the delivery of training courses under controlled conditions. This means that any requirements, prerequisites, conditions and processes which might affect the quality of the delivery shall be considered and evaluated carefully.

4.1 Pre-course administration

Documented procedures shall be established and maintained which ensure that:

- a pre-defined maximum number of participants is not exceeded;
- participants are registered;
- any pre-defined criteria is fulfilled by the students before enrolling;
- necessary preparations for the course are announced;

- information on program, on accommodation and if applicable a list of participants are to be enclosed in the confirmation letters to the individual participants.

4.2 Framework

The maritime simulator centre shall define the responsibility for checks to be performed prior to commencement of any training course in order to ensure that:

- the maritime simulator centre's premises, equipment and capabilities (e.g. simulator/scenario/ship type etc.) will suit the purpose of the training course; and
- all required training equipment will be ready for use.

4.3 Training Course delivery

Documented procedures shall be established and maintained which shall ensure that:

- training course contents is presented in a structured way;
- participant's expectations are compared with the training course objectives;
- evaluation models and criteria are defined and made known to the participants;
- the specific goals for each section or scenario are introduced and the main content is summarized;
- the defined training course program is followed;
- any deviations from the training course program are implemented only in agreement with the participants; and
- the achievement of the training course objectives is assessed at the end of a completed training course.

4.4 Study progression

The maritime simulator centre has to establish and maintain documented procedures to continually control and test whether the training and research activities and results are in accordance with the stated goals. These procedures shall also include arrangements for dealing with unsatisfactory training / research and staff performance.

5. Control and tests

The maritime simulator centre has to establish documented procedures for control and tests to proof that the training objectives are achieved. Adequate records are to be kept for evidence and analysis.

6. Evaluation of training courses and research programs

Documented procedures are to be defined and established to ensure a systematic and regular evaluation of all training courses and research programs. Evaluation reports are to be distributed to all relevant personnel, including the maritime simulator centre's management. These reports can give input to initiate corrective actions. Evaluation reports are to be filed according to the documentation requirements (see section C.5).

6.1 Sources and scope

Evaluation of training courses and research programs should be based upon:

- results from participants tests and/or review questions;
- results from feedback or evaluation forms; and
- feedback or comments from teaching personnel.

It has to be ensured that the following aspects of courses or programs are part of the evaluation:

- purpose;
- objectives;
- contents;
- teaching methods;
- qualification and preparation of participants;
- administrative and organizational framework.

7. Identification and traceability

The maritime simulator centre shall establish and maintain documented procedures for identifying training programs and program elements during all stages of the development, the rendering and the updating of services.

The maritime simulator centre shall establish and maintain documented procedures to ensure that certificates of attendance and other documentary evidence regarding the trainings can be clearly traced and identified.

8. Servicing

Where applicable, the maritime simulator centre shall establish and maintain documented procedures to ensure that its customers are provided with a defined level of continued support and service after completion of training courses.

G. Teaching Aids and Learning Equipment

1. Use of equipment

Appropriate up-to-date teaching aids and learning equipment shall be used in the training process. Respective procedures for the use of this equipment shall be established where applicable and necessary.

2. Operation and maintenance of equipment

The maritime simulator centre shall ensure that:

- equipment and systems are operated in a safe and efficient manner
- equipment and systems are maintained according to relevant instructions
- consumables are available to ensure the unrestrained use of the equipment
- relevant PPE (Personal protective equipment) shall be used by trainees and staff where necessary
- work conditions are according to relevant rules and regulations.

3. Treatment of training equipment and materials

The maritime simulator centre shall establish and maintain methods to ensure that teaching aids and learning materials/equipment are protected against damage, deterioration and loss.

4. Control of measuring and monitoring devices

To ensure conformity with the requirements established, the maritime simulator centre shall identify and calibrate necessary measuring and monitoring devices used in the training process. Results of the calibration shall be recorded. As applicable the measuring and monitoring devices shall be:

- calibrated regularly or prior to use;
- maintained, stored and handled to prevent damage, deterioration or adjustments effecting the calibration; and
- validated prior to use where software is used to measure and monitor specified requirements;

H. Measurement, Analysis and Improvement

1. Planning

The maritime simulator centre shall implement procedures for the measurement and monitoring of its training and research activities to ensure conformity with the defined requirements and to achieve improvement.

2. Measurement and monitoring

2.1 Customer satisfaction

The maritime simulator centre shall establish methods to obtain information of its performance from the customer.

2.2 Internal Audits

The management of the maritime simulator centre shall plan and perform internal quality audits to verify the implementation of the quality system and to determine its effectiveness. The audits shall therefore also confirm that the training courses are achieving their stated objectives or being corrected when not reaching this goals.

For this purpose an internal audit program shall be established. The audit programme shall be developed by defining frequency, scope and methodologies taking into account the results of the previous audits, the importance of the areas to be audited. The audit procedure shall define responsibilities and requirements for the performance, recording and reporting of the audits.

The internal audits shall be carried out in accordance with documented procedures by qualified personnel (internal auditors) independent of those having direct responsibility of the area audited. The results of the audits shall be brought to the attention of the personnel having responsibility of the area audited. The responsible personnel shall take timely corrective action on the deficiencies found during the audit.

2.3 Audit results and follow-ups

Audit results , i.e. findings, conclusions and recommendations, shall be submitted in documentary form to the person responsible for the area audited. Resulting corrective and preventive action has to be documented. The following items are to be covered in the reporting and follow-up of audit findings:

- evidence on nonconformity or deficiencies and their possible reasons;
- suitable corrective actions; and
- implementation and effectiveness of corrective actions agreed in previous audits.

The quality manager shall inform the management of the maritime simulator centre regularly on the internal audit activities and results in an documented appropriate way .

3. Control of non-conforming services

The maritime simulator centre shall establish and maintain documented procedures defining the responsibility for review and authority for the handling of non-conforming services.

Non-conforming services shall be corrected and verified to ensure conformity with the requirements. Methods shall be established for rectification of non-conforming services after completion of the training process.

4. Analysis of data

To ensure suitability and effectiveness of its quality management system and to identify areas of improvement the maritime simulator centre shall collect and analyse data from the following sources:

- the maritime simulator centre's own measuring and monitoring activities;
- customers comments, complaints, requirements;
- state-of-the-art learning and teaching processes and trends; and
- suppliers.

5. Improvement of services

5.1 Planning for continual improvement

The maritime simulator centre shall plan and manage the activities adequate and necessary to improve its quality management system and its services continually. The quality policy with the learning and teaching objectives, the audit results, analysis of data, management review, corrective and preventive action shall be taken as basis for the continual improvement. .

5.2 Corrective action

The maritime simulator centre shall establish documented procedures for the treatment of non-conformities. Measures for corrective action to eliminate causes of non-conformities and to avoid reoccurrence shall include:

- identification of non-conformities by effective handling of customers complaints and reports of non-conformities of services rendered;
- root cause analysis of non-conformities and complaints;
- determination and implementation of the corrective action; and
- controls to ensure that corrective action is taken, effective and documented.

5.3 Preventive action

The maritime simulator centre shall establish documented procedures for preventive action to eliminate causes of potential non-conformities and to avoid reoccurrence. Procedures for preventive action shall include:

- determination of the steps needed to solve any problems, risks or deficiencies of services rendered by maritime simulator centre;
- initiation of preventive action and application of controls to ensure that it is effective;
- ensuring that relevant information on actions taken is recorded for management reviews.

Annex B: Documentation Requirements for the Approval of Maritime Simulators and Maritime Simulator Centres

No.	Document	Content
1.	Cover Letter	Document stating: - Product description and type
2.	Simulator Summary	Document describing: - Type - Overall setup of the simulator - Competencies to be trained or assessed in acc. with the STCW Convention
3.	System Summary	Document describing: - Technical data - Functional description - System block diagrams
4.	Operator Manual	Document describing in detail: - Simulator equipment - Operating instructions - Maintenance procedures - Trouble shooting
5.	User Manual	Document describing in short: - Available equipment - Relevant information for the trainee
6.	Equipment List	Document describing: - Equipment used in maritime simulator
7.	Test Program	Document describing: - Simulator performance verification procedures - Training objectives acc. STCW Convention
8.	Function Test	Document describing: - Results of function tests performed including test requirements, - test logs, protocols, etc.
9.	Attachments	Documents containing additional documentation, e.g. documents required by national requirements

Annex C: Application for the Approval of Maritime Simulator or Approval of Maritime Simulator Centre

Company Details	
Name of Company	
Street	
City Code	
City	
Country	
Telephone	
Fax	
E-mail	

Contact Person	
Name	
Function	
Telephone	
Fax	
E-mail	

Information on Quality Standards System	
Standard of Certification	
Certification Body	
Date of Issue	
Date of Expiry	

Product Information of Maritime Simulator	
Product Description:	
Type:	
Technical Data:	
Kind:	<input type="checkbox"/> Full mission simulator <input type="checkbox"/> Multi task simulator <input type="checkbox"/> Limited task simulator <input type="checkbox"/> Single task simulator

Approval Standard

STCW Convention Regulation:	
STCW Code Section:	

Enclosed Documentation for the Approval of above Maritime Simulator	
<input type="checkbox"/>	Cover Letter
<input type="checkbox"/>	Simulator Summary
<input type="checkbox"/>	System Summary
<input type="checkbox"/>	Operator Manual
<input type="checkbox"/>	User Manual
<input type="checkbox"/>	Equipment List
<input type="checkbox"/>	Test Program
<input type="checkbox"/>	Function Test
<input type="checkbox"/>	Attachments

Date

Signature

Position

Please return to:

➤ by mail

GERMANISCHER LLOYD

Marine Management Systems Certification (BSM)

c.o. Reinhold Heller

P.O. Box 11 16 06

D- 20416 Hamburg

Germany

➤ by fax

+ 49 – 40 – 36 149 – 1702

➤ by e-mail:

reinhold.heller@gl-group.com

The applicant hereby accepts to comply with the latest edition of the general requirements for the approval of maritime simulators as laid down in the "Standards for the Approval of Maritime Simulators" issued by Germanischer Lloyd, as valid during the application.

The applicant hereby accepts to pay all costs and fees arising from the approval process, irrespective of granting an approval.

Place of performance and jurisdiction is Hamburg. The latest edition of the General Terms and Conditions of Germanischer Lloyd is applicable.