Board of Examinations for Seafarers Trust

Collaborative Unit of IMEI and CMMI

ISO 9001-2008 Certified under The Indian Register of Shipping

Request for Quotation

(RE-TENDERED)

Candidate and Examination Management System (CEMS)

-- Main Body --

RFQ Issuance Date: 22/06/2023

Last date for receiving proposals: 30/06/2023

1.1   Scope of Work

1.1.1   Background

BES is looking for an online (web-enabled) integrated rules-based system for centralized Candidate and Examination Management System tailored for evolving policy having transparent online accreditation procedure, common standardized course structures, centralized all-embracing registration and comprehensive reporting to fulfil requirements of BES departments.

The objectives for implementation of such a system
are:

a. Scalable, secure, robust and responsive online system for Candidate and Examination Management System to be integrated with existing systems such as Creating Institutes, Examination Management, certification, etc. and flexible enough to integrate with new systems in future such as Biometric Attendance System) with High Availability Architecture and Disaster Recovery mechanism in place.

b. System that is flexible enough to adapt to evolving policy and administrative rules.

c. Online application and processing of accreditation applications for different type of examination and enrollment procedure.

d. Modules for Institute, BES admin, Examiner, Repeater to be developed.

f. Minimize duplication, paperwork and unnecessary redundancy due to manual processing/manual transfer of data to enable BES officials to focus more on their core activities.

g. Better management and retrieval mechanism.

Through this RFQ Document, BES is looking for an online Candidate and Examination Management System integrated with existing examination, certification, and placement systems. The newly designed system shall be deployed by the vendor at BES premise. In addition to above, the selected vendor will also carry out the migration of existing important useful data from systems to be replaced and from BES MIS to the proposed integrated System.

Interested bidder may submit their bids through a sealed envelope, addressed to, "**Admin Officer, Board of Examinations for Seafarers Trust, Office No. 1007-1008 (10th floor), NMS Titanium, Plot No. 74, Sector-15, CBD Belapur, Navi Mumbai – 400614."**

The selected RFQ submitter will have the sole responsibility to deploy and maintain the system. The selected RFQ submitter should assess the capacity planning and assessment for the solution. The competent and professional organizations/firms having proven expertise in System Study, Design, Development, Implementation and Maintenance of Web enabled applications using latest available proprietary or stable Open Source technologies are requested to submit their bids against this Tender Document.

1.1.2   Broad scope of work

Broad scope of modules to be developed shall include but not necessarily limited to the following Annexture 1.

If any services, functions or responsibilities not specifically described in the contract are an inherent, necessary or customary part of the services or are required for proper performance or provision of the services in accordance with the Broad Scope of Work or Indicative List of Required Features, they shall be deemed to be included within the scope of the work to be delivered for the charges, as if such services, functions or responsibilities were specifically described in the scope of work.

The System should be driven by an integrated suite of software modules with customization capabilities that supports the basic internal business processes of BES activities under scope of work and have a common database and Service Oriented Architecture wherever appropriate or required for integration with other systems.

The work includes:

1. Study, Requirement understanding and Analysis with respect to developing Online

    Integrated System for BES after undertaking the study of the existing systems:
    - Preliminary study for existing system of BES.

    - Requirement gathering through consultation with BES and institutes

      Finalization of Software and Database configuration.

    - Finalization of data migration and changeover strategy for smooth changeover.

2. Design, Development, Implementation and Maintenance of proposed online integrated system.

3. The system shall have options for multiple level of administrative control having varied rights for all the modules so that they are able to perform functions pertaining to their respective Centre/Domain as per their assigned rights.

4. System should be robust, responsive and support at least 1000 concurrent users login per instance and scalable as per need.

8. The selected RDF submitter would be required to provide Maintenance, and Technical Support from the final deployment the project, and Annual maintenance of system with onsite technical support as and when required. Warranty and AMC include bug fixing, minor changes apart from regular maintenance. The free warranty period would be of 1 year after the successful implementation of the system on production server. The successful implementation of the system means:

    a. Sign off of UAT

    b. Security Audit

    c. Successful Implementation on Production Server

    d. Handover of actual running software source code complete in all respects including source code of binary files and other supporting libraries.

After expiry of AMC period, the vendor shall compulsorily offer AMC for a minimum of two years @ 7% per annum of contract value after expiry of warranty period. However, BES may or may not award the AMC at its own sole discretion. AMC Subject to terms & conditions agreement.

9. Identify the training requirements and train the concerned BES staff/officers for successful implementation and maintenance of the developed system. The Training shall include application, database, and other related features.

10. Preparation of User, Design & Technical manuals and other documents for the developed system in an easy to understand and user friendly language with proper Diagrams, Screen-shots and charts wherever required.

11. The design should organize business logic (with facility for authorized users to define, modify, add, and delete business rules from front end) and presentation logic separately while developing and implementing the proposed system, thus, restricting the database queries to be inserted inside the presentation and business logic; rather, it should be written in the Database only. Data Fields's name should be self-explanatory.

1.1.3   Indicative Scope of Work

The indicative scope of work regarding Designing, Development, Implementation, and Maintenance of online integrated Candidate and Examination Management System (CEMS) integrating information & activities of all BES Centers, candidate and Institutes is specified as under:

Phase 1: Analysis

    i.   Finalizing the detailed list of activities, scope and duration of each of the activity and detailed project plan.

  ii.   Study of the existing systems which includes database, features and functionality, course structures & eligibility, accreditation system, schemes, registration SOP, screening committee guidelines, etc. to determine precise requirements of the new system.

   iii.   BES will facilitate institute visit & interaction with required personal in the analysis phase.

   iv.   Detailed discussions with concerned BES officials to understand the overall objectives of the assignment.

   v.   Finalization of Project Objectives / Requirements.. Submission of detailed Project Proposal / Plan.

   vi.   Signoff on detailed project plan, activities, timelines etc. from BES.

Phase 2: Design

   i.   Detailed Requirement gathering and analysis.

  ii.   Study and analysis of existing /Similar system and include best practices in draft design.

iii.   Carry out a System Study including SOPs, guidelines, programmer's eligibility, existing systems to be replaced and with which to interact, etc. to prepare the Software Requirements Specification (SRS) and Functional Requirement Specification (FRS) document.

iv.   Detailed High level and Low-level application designs.

v.   Information Integration and Consolidation.

vi.   Client Sign-off for Requirement Analysis.

vii.   Vendor shall develop appropriate screen layouts and templates for the user feedback.

viii.   Approval of prototype (design interface) developed by vendor.

ix.   Coordination and collection of required data from BES.

x.   Approval on the data gathered by the client department.

xi.   Proper backup policy.

xii.   Data migration strategy.

xiii.   Comply with website security and Auditing & Logging guidelines.

Phase 3: Development

i.   Coding / Temporary Demo server

ii.   Importing of data for testing

iii.   Application Development

iv.   Adherence to Web Application Audit/ Compliance and Approval / Security Features

v.   High availability architecture with following elements:

      a. Load balancing and Redundancy.

      b. Elimination of single points of failure.

      c. Detection of failures as they occur.

vi.   Developed System Application should have multiple backend systems interfacing capabilities.

vii.   Rigorous testing of Developed system including Unit Testing, Integration Testing, System Testing, Functional Testing, Peak Load Testing, etc. with reports.

viii.   Testing of developed system based upon Compliance to applicable guidelines, Assess the user objective achievement, etc.

ix.   Completed system components for UAT

x.   Migration of existing data for UAT

xi.   UAT Sign-off by BES

xii.   Modification based upon user feedback

xiii.   Migration of data to production environment

xiv.   Sign off on developed system by BES

Phase 4: Operation and Maintenance
support

i.   Identify and execute training requirements for successful execution of integrated system

ii.   Creations of necessary documents and User Manual for training

iii.   Support in handover of system to BES

iv.   Support on Training / Demo as and when required

v.   Annual Maintenance of system

vi.   Designing interface/ mechanism for Mobile based application

1.1.4   Indicative Deliverables

This section provides indicative deliverables; however actual deliverables will depend upon project specific requirements and will be finalized in consultation with BES.

i.   FRS, SRS, High Level Design and Architecture Documents

ii.   ii. Performance Test Reports

iii.   Security Test Reports

v.   User Manual and SOP

vi.   Technical and Design Manual

vii.   Data Backup Process and Archival Process
viii.   Requirement Traceability Matrix

ix.   Error-free Source Code of the actual running software complete in all respects along with source code of DLLs and other Libraries

x.   Infrastructure design document
xi.   Data Migration Utility

xii.   Data Model

1.1.5   Indicative List of Required Features to be included in the System

The following is an indicative outline of required features. Tentative Module outline of the required features under scope of work is at Annexure-2. Detailed requirements will be finalized by the bidder in consultation with user departments of BES reintegrated

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system catering to the needs of all BES office and accredited institutes should include the following:

a) Finalization of backup policy.

b) Online Comprehensive CEMS:

   i. Accreditation module for accrediting institutes with facilities for online applications including online payment of fees and processing including uploading of supporting documents, screening, inspection, accreditation/rejection/deferment of applications, online monitoring and renewal/downgrade/withdrawal of accreditation.

   ii. Management of experts such as accreditation screening experts, exam Co-ordinators , observers, etc.

   iii. Facility for BES to add/update/revise modules and courses and their details etc.

   iv. Easy to access and understand information system for various training activities of BES.

   v. Track interactions with students from first contact to course completion and beyond and checks to minimize duplicity.

   vi. Online registration for courses including online payment and distribution of fees to concerned exams.

   vii. Exam Scheduling (with provision for scheduling of on-demand exams)/rescheduling and online registration for examinations after online payment of fees (such as exam, practical or online fee).

   viii. Functionality to assign roll numbers and exam centre to the candidates

   ix. Utilize email communication and tracking wherever possible

   x. Access web-based forms for inquiry from repeater candidate to make management of candidate data easier and more accurate.

   xi. Automated transfer of required data between the proposed Examination records, Certification Portal Systems and BES Website. Web Services to facilitate interaction.

   xii. Provision for MIS reports and export to excel or PDFs.

   xiii. Integration of Institute data of candidates bearing name, identification details etc and fees payment details etc. Departments.

   xiv. Provide mechanism to verify e-certificates issued by BES.

   xv. One time migration of data from the old system to the new system

   xvi. Secure login-in for each user along with audit/log trail.

   xvii. One login for Super Administrator at BES

xviii.   Super Administrator can create/edit/assign/delete rules, roles and users along with audit/log trail. The bidder shall initially configure the rules at the time of testing and implementation.

xix.   Database should be normalized, ensure referential integrity, appropriate primary keys should be defined, and data fields names should be self-explanatory.

xx.   There should be a mechanism for Version Control and Bug Reporting & Tracking.

xxi.   Mechanism to ensure through version control that any change in rules/procedure etc. does not make the data/information, etc. misleading, incompatible, or corrupt.

xxii.   Design should support Extensive portal Analytics and Statistics to be provided as per requirement of BES.

d) Proposed System should be accessible on all platforms and all major popular browsers (e.g. Internet Explorer, Mozilla Firefox, Google Chrome, Safari, Opera, etc.). A student shall be able to query/register/make payments from all popular browsers and mobile platforms.

e) System must have security features as follows:

i.   Free from OWASP Vulnerabilities (Open Web Application Security Project).

ii.   Captcha Code on all entry forms.

iii.   Strong Password Policy.

iv.   Storing of any kind of username and password in the encrypted form in the database.

v.   Session Management

vi.   Audit/Log Trail.

f) Audit Trail should be throughout the system and database but should be kept separate as far as possible from main tables including:

i)   Login attempts with time, IP Address, etc.

ii) Any change in data with time, IP Address etc.

g) System shall have feature to send the EMAIL notifications to BES in the following cases and others as required:

i. Verification email to institutes applying for accreditation

ii.   Calling for clarifications/additional information from institutes applying for accreditation

iii.   Decision on the application of accreditation center

iv.   Assignment of duties to the experts

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    v.   Query data to concerned centers at predefined intervals.

   vi.   For verification of contact details of students at the time of registration.

  vii.   Reminders to pay instalments due.

 viii.   Important dates (like last date(s)) etc. to the registered students.

   ix.   Students who have been deactivated.

    x.   Automated MIS reports

Note: Features requirements indicated above are bare minimum. It does not limit

Bidders to give better system.

Annexure 1

1. BES Admin Module

1. BES Managements: Authorized user should be able to define/modify/add/delete for Department, BES Staff, applying rules to department to have separate access control of the portal. Access rights will be based on all modules and its pages within portal with respect to VIEW / ADD / EDIT / DELETE.

2. Institute management: Authorized user should be able to define / modify /add / delete Institutes. Adding Institute will have detail input field which help BES to track communications. Institute login also need to generate to help institute to login institute portal.

   BES will also be able to control each candidate enroll by institute.

   Searching the candidates based on with multiple filters.

3. Candidate Listing and control based on examination and also with direct search from oversell database. BES authorized person can verify the candidate with every prospect before examination.

4. Examination Master: Authorized user can generate the exams. This exam will be affiliated with BES or any other organization. Mainly with BES exams with respective subjects. This will first level intimation to institute to enroll the candidate from course and followed with examination procedure. Automated emailing system where institute will be informed about starting the procedure for candidate enrollment. Update of online exam score / marks against each candidate.

5. Examiner Management: Repository of examiner who will conduct online, Oral or Practical examination. Each examiner will have particular range to provide this service.

6. Examination Management: Generating Admit cards for exams. BES to manage the examination functioning. Allocation of Institute with candidate, assign the Examiner to institute and exam. Also, after examination certificate generation.

7. MIS reporting

2. Accreditation/ Institute Module

1. Separate login URL for Institute.

2. Authorized to define/modify/add/delete candidate enrollment with link examination

3. Update and upload the candidate required certificates and documents for fulfilling eligibility for exam.

4. Update the payment details.

3. Examiner Module

1. Giving portal access with special examiner login.

2. This login is available with limited time frame till exam with respect to examination.

3. This module with allow BES and examiner to verify the candidate before examination.

4. Examiner can conduct both oral and practical exam and same marks / score will be updated against the candidate instantly.

5. There is regulation to be applied, marks submitted gets freeze after 10 mins of submitting exam.

6. Examiners have detail insight of examination to be conducted, completions details.

4. Repeater Module

1. Any candidate failed can give maximum 7 attempts and with age criteria.

2. On BES public website, intimation will be shown about repeater exam.

3. Repeater can register for re-test by entering his InDos number, Name, Email id and phone number. Once verify can get into his dashboard.

4. Candidate will be listed pending exams on dashboard. He can select single or multiple for his repeat exam.

5. Repeater candidate will have to make online payment to give retest or exam.

6. Once he paid the for exam, his hall ticket will be emailed to him.

Annexure 2

Qualification/Experience of prospective bidders and payment schedule

1 *Qualifications:*

The bidder must fulfill these requirements and provide in their bid proposal:

- An overview of its organization i.e. parent, age, size, number of customers, offices, number of employees, ownership and organizational structure.

- Details of at least 1 similar projects related to the case which was implemented successfully.

- At least 7 years of experience (either of the company or of key personnel) in field of IT solutions.

- Response to critical feedback and various view of points.

- Demonstrates openness to change and ability to manage complexities

2 *Project Personnel*

The bidder must provide sufficient staff that is qualified, assigned, monitored and supervised to deliver the required services to BES within the time frame of 4 months from issuance of the Work Order.

The bidder shall specify the experience and qualifications of the staff who will be working on the project. The average minimum experience of the team members should be 3 years (in the proposed domain/similar projects(.

BES requires that a Project Manager be assigned to oversee the operation of the entire project. The Project Manager should have a minimum of ten (10(years' experience managing large scale projects involving the IT area subject of this RFP for accounts similar in scope and complexity to this project and must have demonstrated effective oral and written communications skills in English

3 *Inspection and acceptance:*

The software shall be subject to inspection and testing by the BES designated representatives, to the extent practicable, at all times and places, including the period of development and, in any event, prior to final acceptance by BES.

4 *Payment:*

BES shall, on fulfillment of the delivery terms, make the final payment within 30 days of receipt of commercial invoice, the prices shown vendors offer may not be increased except by express written agreement of BES.

The overall payment shall be divided into three installments paid as follows:

30%	After finalizing the contractual process and submitting the scope of the work.
30%	Paid on successful demonstration of Beta version.
30%	Paid on successful demonstration of Final version of the Programme.
10%	Paid on successful operation of the Programme for 6 months.

5   T*echnical Evaluation and selection process [hp]*

Summary of Technical Proposal Evaluation Forms		Score Weight	Points Obtainable
1.	Expertise of Institute/Organization.	30%	300
2.	Proposed Methodology, Approach and Implementation Plan.	40%	400
3.	Management Structure, Key Personnel, and Trainers related to this assignment.	30%	300
Total			1000