University Grants Commission
Sanothimi, Bhaktapur
Terms of Reference (TOR)

For
Design, Development, Installation and Implementation Support of Web based Education Management Information System (EMIS) Software for UGC.

Background Information

University Grants Commission (UGC) is a statutory organization established on November 22, 1993 under the parliament Act. It is autonomous body, governed by its Board as mentioned in the Act. UGC is responsible for the allocation and disbursement of the government grants to the universities and community campuses, regulating their activities, formulating policies and programs. In addition, UGC also coordinates with the government and other stakeholders for the establishment of new universities organize different types of higher education quality improvements programs, and higher education data management, dissemination and statistics report publications annually.

UGC has received a grant from the International Development Association (IDA) toward the cost of the Second Higher Education Project. The project aims to (a) enhance quality and relevance of higher education and research through a set of incentives for promoting effective management and financial sustainability of academic institutions; and (b) improved access for academically qualified under-privileged students, including girls, dalits and educationally disadvantaged janjatis, to higher education through financial assistance and enhanced capacity of higher secondary schools.

UGC performs a broad range of activities including the data collection from universities and community campuses for regular grants disbursement and EMIS report publication purposes. UGC also collects necessary data from various government departments for purpose of report preparation. UGC compiles those data and generates reports for internal purpose as well as disseminating relevant information to the general public and other stakeholders.

At present UGC has been publishing EMIS report maintaining the collected data in simple MS Access and MS Excel based program by defining data field and creating number of files. Report tables data has been retrieved using SQL command through MS Access and filled each table cell individually. The main purpose of this undertaking it to establish comprehensive Higher Education Management Information System (HEMIS) for timely, effective and efficient collection, processing, and reporting of data/information needed for decisions, program development, implementation, monitoring and evaluation. The system is expected to help develop culture of information based decision, programming and follow-up actions.

Objectives of the assignments:
Specifically this project aims to design, develop and operationalize a web-based EMIS system with database application that will assist its users (administrators and global clients) to send, access, analyze, process, and convert data into useful information using various search, sort, filter, and rank queries accessible both on local intranet and internet.

The specific objectives of this assignment are:

- To design and develop Web-based database application for online data entry and inquiry. The data base is expected in assisting all activities of UGC, universities, and their campuses for information based planning, decision making, monitoring and evaluation.
To develop and establish fully functional computer based EMIS useful for UGC, universities, campuses and automatically generate EMIS report annually.

To ensure flexibility in database design to adapt/accept the changes in data that may be required in future management.

To establish UGC as a higher education data coordination centre.

**Broad Scope of Work**

This procurement is for the design, development, installation and deployment of Web based EMIS (Higher Education) software for UGC. The selected Firms/Company shall be responsible for analyzing the requirements, designing, developing and supporting towards implementing the EMIS software system, at campus level, university level and UGC level, as well as live operation of the system within the time frame stated in the document.

**Detail Scope of Work**

**General**

1. Review UGC EMIS system and related higher education institutions data formats, and operational documentations of the EMIS.
2. Conduct need assessment for the development and installation of EMIS in related institutions,
3. Specify required hardware, networking architecture and other infrastructures to support the EMIS software.
4. Carry out broad discussion with UGC, universities, and campuses EMIS related staffs in the process of designing, development and installation of EMIS software.
5. Develop a fully functional computerized EMIS for UGC, related universities and their campuses for timely decision making purposes. This system will have provision for web-based, on-line data entry as well as off-line data entry where data can initially be entered/saved locally and uploaded to the central database directly from the local files. Install and test the software in at least five campuses, two universities and at UGC and demonstrate its functionality.
6. Provide operational and technical training for the staff of UGC, Universities, campuses and other stakeholders.

**Key Characteristics of the EMIS**

1. Provides user-friendly, web-based, online data entry/access, inquiry, and reporting facilities.
2. Provides option of first entering the data off-line (and storing locally), and uploading the data to the central database later directly from the local files (e.g., MS Excel, PDF data entry forms that can be uploaded to the web-based data entry system).
3. Provides options of downloading the entered data from university/campuses in different formats such as in MS-Excel, Access etc.
4. Maintains authenticity of the information sent from related universities and their campuses.
5. Stores system indicator based detailed records about universities and their related campuses (e.g, student enrolment, graduates, pass percents, teachers, staffs, programs, financial information, GER, and recent trends on their enrolment, campuses, graduates, and public financing etc disaggregated by universities, campuses, programs, levels, gender, ethnic groups, and others).

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1 The selected Firms/Companies shall be in regular consultation with UGC during analysis, design, software development, and especially implementation support and training of related UGC staffs to ensure smooth functioning of the software at the UGC.

2 The selected Firms/Companies must be capable of providing enough manpower, and other resources and equipment to perform the entire scope of work.
6. Maintains three level of education data management i.e., campus wise database, university wise database, and UGC database.
7. Provides tools for basic data analysis (such as producing summary statistics, simple graphs, trend plots, etc.)
9. Provides facilities for generating and printing different reports including, inter alia, output tables and figures on system indicators, e.g., - total universities / academies; enrolment (by university/region/zone/belt/faculty/level/gender etc.); number of programs (by university/campus type etc.); GPI, GER, pass rates (by university / campus type / level / faculty,gender etc.); graduates (by university / level / faculty, gender etc.); and teachers (by service type, designation, gender etc.); and financial information according to the UGC EMIS system indicators.
10. Maintain individual personnel information (e.g students, teachers, staffs etc), by providing online electronic data form and keep track of those personnel.
11. Provides online facilities to keep records for day to day activities of campuses and universities in the central database.
12. Develop electronic statistical data collection form to collect aggregate data and the software shall able to import the form data into the system automatically.
13. Provide flexibility to add/delete/modify attributes to data records.
14. The firm should carry out data entry of at least 15 campuses for the testing purposes and provide accurate testing report based on real data.
15. Ability to import/export data from/to other database software such as MS- Excel, MS - Access, SQL Server, SPSS, MYSQL.
16. Able to generate two types of tables: Pre-defined tables -the fixed indicator based tables defined by UGC to prepare EMIS report. User defined tables- tables created by system based on user queries, which are available in the system.
17. These outputs can also be saved in Ms Word, Ms-Excel formats for documentation and analysis purposes.

Technical (IT) specifications of the EMIS software/database

Data management and functioning
1. The applications accessible in browser would be developed in HTML, DHTML, XML, JavaScript etc.,
2. Applications for the web server would be developed in JavaScript, Asp.Net with C# etc.,
3. The Database server would be having Microsoft -SQL server etc.
4. The software shall be compatible with latest internet explorer and operating system.
5. The product has enough flexibility to accommodate the frequent changes and open to customization as required for the future.
6. Content management system (CMS) should be enabled.
7. The software shall be flexible and scalable in terms of performance and functionality.
8. Able to run on Intranet when there is no internet connection.
9. The software product should provide user manual of the system.
10. Should have a dynamic access menu control.
11. Software should support use of multiple users at a time.
12. The response time of the software system should be as under:

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3: This approach is expected to useful for those universities and campuses that have enough manpower and IT resources and internet connection facilities.
4: This approach is expected to useful for those universities and campuses that have not enough manpower and IT resources and no internet connection so that able to fill data in offline mode on the form and can submit electronic data form whenever they get internet access.
- For data transaction like – add, update, edit, delete etc.: Response time will be less than one second or less.
- For complex transactions: Response time will be two seconds but in any case time for completion of the transaction shall not exceed five seconds.
- Response time for “help, exit/entry of menus, scrolling or paging, error processing etc. shall be one second or less.

Security and data integrity
13. Software should be free of any propriety/licensing.
14. Should have the necessary security safeguards mechanism.
15. Provide data integrity features that will prevent more than one user from changing the same information simultaneously.
16. Provide multiuser access to data, along with security features that prevent some users from viewing and/or changing certain type of information.

17. The software shall provide Logon ID and password for any users who use the system with basic level of data entry, data modification, and update, add/delete records.
18. The software shall keep the track of user login / sign out and activities performed on database each time and keep specific logs or history data sets.
19. Administrators shall be able to view and modify all information in EMIS.
20. Any modification (insert, delete, and update) for the database shall be coordinated and done by administrator.
21. Normal user data view level permission: any user can access the UGC EMIS database without logon but the system should define access level as per universities/campuses rules and regulation on some confidential information.
22. Check data integrity for critical variables.
23. Provision of data warehousing and data mining.
24. Provide proper data backup, and recovery mechanism.

Service Level Agreement
1. One year warranty and one year post warranty annual maintenance contract (AMC).
2. The selected consultant/firm/company shall have to work together with UGC personnel incorporating the existing EMIS manpower of UGC in working team during development to implementation period.

Deliverable
1. Inception report including work schedule 2. Periodic progress report according to work schedule (Monthly report compulsory) 3. Completion report 4. Operational mannal of the system. 5. System delivered on DVD with source code.

Eligibility Criteria
1. Firm/Company should be in existence for at least five years and must be in the business of secure (mainly authentication, encryption, and integrity etc.) web based software design, development, installation and deployment the software products during the said period.
2. Firm/Company must have successfully designed, developed, and installed at least two Secure (Authentication, Encryption, and Integrity) On-line Data Collection and Processing related Software or Secure Web Based Software.
3. Firm/Company must have, at least one, successfully designed, developed, installed and commissioned such secure web based software in any organization.
4. The Firm/Company must be capable of providing enough manpower, financial resources and equipment to perform the entire scope of work mentioned herein.
5. Partnership Firms or Companies registered under concerned department of GoN can submit EOI.
6. In case of Joint Venture, the role and responsibility of each partner should be clearly furnished.
7. For the short-listing purpose, specific (technical) experience of the lead Firm/Company and financial strength of both Lead and associate Firm/Company would be considered.
8. Short-listing of Firms/Companies shall be based on the pre-defined evaluation criteria.
9. Firms/Companies may submit the list of third-party support (i.e., Sub-consulting Firms/Sub-contractor), if it is required for this project.
10. Firms/Companies, either single or member of Joint Venture can apply only in one EOI. To avoid confusion and possible elimination after short-listing, Lead Firms of Association or Joint Ventures are strongly advised to confirm relationships (exclusive or non-exclusive) with selected associates or partner prior to expressing interest.
11. In addition to authenticated hard copy, the Firm/Company must submit information / documents in soft copy.
12. The firm/company should be familiar with the functioning of the universities and their campuses activities and overall higher education system of the Nepal.

Requirement by the Applicant

a. Qualification
   Educational Qualification, Training and Work Experience of all Key Staff should be in IT and detail knowledge on Nepalese higher education institutions (Universities and their campuses) functioning modality. Project team leader/consultant should have at least Master in engineering/computer Science or IT and programmers must have at least bachelor degree in IT.

b. Operational Experience
   At least 5 years experience of operations in software development and installation.

c. Specific Experience
   1. Experience of successful design, develop, commissioning and support of web based On-line Data Collection and processing related Software in the last five years.
   2. Firm/Company must have, at least one, successfully designed, developed, installed and commissioned such web based management information system (MIS) software for any college or government departments or government corporation or public limited organization.

d. Technical Experiences/Capabilities
   The company/firm should list all the similar projects completed within the past five years and provide detail information for each of those projects and submit the Certificate of specific work experience of the Firm/Company must be attached with EOI Application Form, which must be issued by respective clients and must include, among other things, name and nature of assignment, location of the assignment completed, duration (mm-yyyy) and period (date) of the assignment, duration of stay/work in the assignment, assignment value etc.

e. Documents
   The Firm/Company should submit attested copies of academic qualification, training and experiences of Key Staff proposed for this Project. The Certificate of Training should indicate the subject of training, date, period of training, location etc. The Certificate of Specific Work Experience of the Key Staff must be issued by respective Clients and must include, among other things, name and nature of assignment, location of the assignment completed, duration (mm-yyyy) and date of the assignment, duration of stay/work in the assignment, assignment value etc.

f. Financial Strength
The Firm/Company should submit audited financial statements for the last three fiscal years.

g. In addition to the above qualification requirements, the consultant shall be required to be legally registered with VAT and Income Tax as per the laws of Nepal. The consultant must submit the up to date Company Registration Certificate, VAT Registration Certificate and Tax clearance/Tax Return Submission Receipt for the last fiscal year (2067/068) along with the application.

**Time Schedule:**
The selected firm/company’s expected delivery time is 6 months for study and analysis, design, development, testing, deployment and training plus 1 months of live operation followed by 1 year warranty. The schedule break down is:

1. Preliminary Investigation or Analysis:- 10 days
2. Specification and Requirement Analysis:- 1 month
3. Design or Architecture:- 1 month
4. Implementation (Development or Coding):- 2.5 months
5. Testing and Documentation:- 2 months
6. Deployment:- 7 days