

SAMTSE COLLEGE OF EDUCATION

TERMS OF REFERENCE

DEVELOPMENT OF COLLEGE WEBSITE

Terms of Reference (TOR)

1 Introduction

1.1 Background

Samtse College of Education (SCE) is another constituent college of the Royal University of Bhutan. It specializes in teacher education. Located in a pristine environment congenial for study and contemplation, the college is about 10 minutes' drive from the small town of Samtse in south west Bhutan.

SCE was founded as a teacher-training institute in 1968. Previously known as the National Institute of Education, it became a member college of the Royal University of Bhutan in 2003. The college offers a wide range of programmes at the diploma, undergraduate and postgraduate levels for pre-service and in-service teacher candidates. At present SCE offers M.Ed in Science and Maths, M.A in Contemplative Counseling, Postgraduate Diploma in Education; Postgraduate Diploma in Contemplative and Counseling, Bachelor of Primary Education and Bachelor of Secondary Education. Apart from the award bearing programmes that it teaches, SCE also provides a number of short trainings, workshops, seminars and other professional develop courses to teachers and other professionals in the field of education. All of the programmes are taught by a team of qualified and dedicated faculty.

SCE offers a unique learning opportunity for its students. It has excellent boarding facilities, guest rooms, IT labs, cafeteria, modern lecture theatre, and convenience shops.

1.2 Objectives

The general objectives of the college website is to have a dynamic state-of-the-art website which would truly reflect and add to the college's vibrant academic environment and campus life. This entails a working blend of Web 2.0 technologies and eye-catching presentation of information. The website should be elegant and uncluttered in look, and user friendly in its layout and content.

1.3 System design

The website should have an elegant design with white/pastel background, light colours, a neat, uncluttered look and a user-friendly, easy-to-navigate layout. Some of the chosen websites which are similar to the 'feel' required by the College are listed below, to indicate the kind of look that SCE seeks for its own website:

- <http://www.harvard.edu/>
- <http://www.ox.ac.uk/>
- <http://www.une.edu/>
- <http://au.edu>
- <http://edtechnology.co.uk/>
- <https://www.naropa.edu/>
- <https://www.unb.ca/>
- <https://www.utexas.edu/>
- <http://www.unimelb.edu.au/>

2 Terms and Conditions – Technical

2.1 Software User Requirements

The college website should use Open Source platforms (PHP/MySQL/PGSQL, etc).
The system has to be platform independent and client software independent.

2.2 Audit Trails and Time Series Data

The audit trail feature must be available in the proposed website, which will inform when and who has created or modified the data. The website should also be able to capture and preserve time series data so that certain information is not lost with passage of time and repeated updating.

2.3 Legacy data Migration/Correction & upgrading of database

The existing data from any old/existing systems should be migrated to the new database. The database for the new website will have redesigned as per the requirement of website without any data loss.

2.4 System Design

2.4.1 System Architecture

The website should be developed in the MVC Architecture. MVC stands for Model-View-Controller, and it's an idea behind application development to separate the 3 main pieces of the application into their own isolated environments. **Model View Controller** or **MVC** as it is popularly called, is a software **design pattern** for developing web applications and websites.

2.4.2 Software Interface

The interface of the website should be user-friendly, interactive, dynamic, responsive and mobile friendly and the system must be compatible with the browsers like Internet Explorer, Mozilla, Safari, Google Chrome, etc.

2.4.3 Software Specification

The following are the programming language needed to install and use in our website development:

Front End:	HTML,CSS with Bootstrap Framework
Application Logics:	PHP with robust and international standard Framework <i>Note: Open source CMS is not preferred</i>
Back End:	Complete Open Source Database Server
Web Server	Apache

2.4.4 Security Features

The website must have standard security features inbuilt so that the website has all the checks and balances to ensure integrity of data and the software does not have any flaws or bugs which inadvertently or by design, permit the users to tamper, alter or modify any data without the appropriate permissions.

2.4.5 System Security

The website should have included minimum-security features as follows:

- 2.4.5.1 Cross-site scripting (XSS):** It is a type of computer security vulnerability typically found in web application. XSS enables attackers to inject client-side script into web pages viewed by other users.

2.4.5.2 SQL Injection: It is a code injection technique, used to attack data-driven application, in which malicious SQL statements are inserted into an entry field for execution.

2.4.5.3 Directory Traversal: It is an HTTP exploits which allows attackers to access restricted directories and execute commands outside of the web server's root directory.

2.4.5.4 Iframe Injection: An iframe injection is an injection of one or more iframe tags into a page's content. The iframe typically does something bad, such as downloading and executable application that contains a virus or worm in it... something that compromises a visitor's system.

2.4.5.5 Cross Site Request Forgery: It is known as one-click attack or session riding and abbreviated as CSRF (sometimes pronounced sea-surf) or XSRF, is a type of malicious exploit of a website where unauthorized commands are transmitted from a user that the website trusts.

2.4.6 Application Security

2.4.6.1 Application security shall encompass all measures taken throughout the application's life cycle to prevent exceptions in the security policy of an application or the underlying system (vulnerabilities) through flaws in the design, development, deployment, upgrade, or maintenance of the application. The website security features to tackle the following categories of common application security threats / attacks have to be addressed:

2.4.6.2 Input Validation – The standard means to validate the user inputs from the web form fields have to be incorporated to prevent attacks such as buffer over-flow, cross-site scripting, SQL injection, etc.

2.4.6.3 Authentication – The authentication module have to be developed based on the best practices to tackle attacks such as Network eavesdropping, Brute force attack, dictionary attacks, cookie replay, credential theft.

2.4.6.4 Authorization - Elevation of privilege; disclosure of confidential data; data tampering; luring attacks

2.4.6.5 Configuration Management - Unauthorized access to administration interfaces, unauthorized access to configuration stores, retrieval of clear text configuration data, lack of individual accountability, over-privileged process and service accounts have to be taken care of.

2.4.6.6 Sensitive Information – Access to sensitive data in the storage have to be blocked using correct file permissions and other preventive measures to block access to sensitive information.

2.4.6.7 Session Management – Web-application sessions have to be managed properly so that web attacks such as Session hijacking, session replay, and man in the middle are prevented.

2.4.6.8 Cryptography - Poor key generation or key management; weak or custom encryption. Double salt value on AES 256 or standard and latest encryption algorithm preferred.

2.4.6.9 Parameter Manipulation - Query string manipulation; form field manipulation; cookie manipulation; HTTP header manipulation

2.4.6.10 Exception Management - Information disclosure; denial of service

2.4.6.11 Auditing and Logging – Proper audit trails have to be built. Both Application and System logs have to be maintained.

2.4.7 Required Features

2.4.7.1 Interactive

2.4.7.2 Responsive and mobile friendly

2.4.7.3 Dynamic

2.4.7.4 State-of-the-art Design and Layout

- 2.4.7.5 Secure
- 2.4.7.6 SSL Certificate
- 2.4.7.7 Notification and Subscription
- 2.4.7.8 Web forms
- 2.4.7.9 Social media integration
- 2.4.7.10 College-staff (faculty & non-teaching faculty) profile
- 2.4.7.11 Organogram
- 2.4.7.12 E-payment Integration (for subscription or alumni registration)

2.5 Hardware Requirements

- 2.5.1 The [Successful Bidder] shall propose required hardware(s) specifications to cater the scalability of the application in the long run.
- 2.5.2 Under the technical proposal, the bidder is required to present the complete physical architecture of the computing environment that is in conformity with the software specifications and technical requirements proposed by SCE in this document. However, the supply of any additional hardware such as server machines, and data communication equipment required for the solution will be purchased by the SCE.

2.6 Development Methodology

SCRUM model must be used for the design and development of the system.

- 2.6.1 The [Successful Bidder] will initially carry out a detailed requirement study (existing functional flows and new requirements) including Process Re-engineering wherever possible, which will result in formulation of a Software Requirement Specification (SRS) document and Software Design Document (SDD).
- 2.6.2 On acceptance of SRS and Design document by the client (SCE), the [Successful Bidder] will develop and present a non-functional prototype (HTML, CSS prototype) of the system to the client and obtain approval.
- 2.6.3 The [Successful Bidder] will build on the approved prototype, the new website, which will be fully functional at its own premises.
- 2.6.4 SCE will deploy the ICT professionals for the project. This is done for better Transfer of Technology. However, their role is to learn the details of the design so that at later stage, corrections can be done in-house. The [Successful Bidder] must not bank on their skills for development of the website. But, it is also necessary for the [Successful Bidder] to involve these ICT professionals actively in the development.
- 2.6.5 After the development is over, the testers from [Successful Bidder]'s side will first test the developed software in the premises of the SCE. Any bugs reported must give immediate attention to the bugs and attend to them within 24 hours of receiving the complaint from the client in any form of media. The bugs must be fixed within 5 working days. However, in some exceptional cases, the bidder may negotiate for time extension if acceptable to the SCE.
- 2.6.6 The final testing of the software package with sample website test data will be done at SCE premises on development and production servers. After the user acceptance test succeeds, the website will be deployed for live at the location specific after migration of the data from the existing website to the new website.

2.7 Training of Technical Personnel

The bidder must provide comprehensive training to ICT personnel in the operation of the website, data migration and data backup & recovery.

2.8 Warranty, Support, Maintenance & Change Management

The [Successful Bidder] shall provide a 12 months (Warranty support) on-site maintenance and support service by deploying [Successful Bidders] own resource personnel for smooth operation, and maintain the website.

Duties:

- Perform on-job users training, as and when required
- Perform maintenance service of the website
- Perform trouble shooting of the website
- Perform data recovery operation as & when required
- Keep data free from virus and internal/external threats.
- Bugs fixing, if any

If the changes are requested to [Successful Bidder] after the SRS sign-off and before the development of the specific module, it will NOT be considered as Change Request (CR) and no additional cost will be allocated.

2.9 Backup and Recovery

The [Successful Bidder] shall recommend and provide backup management services (conduct regular backups and restoration, of data and systems to achieve the required service level). The activities shall include:

- 2.9.1** Automatic backup database and application servers.
- 2.9.2** Monitoring and enhancement of the performance of scheduled backups, schedule regular testing of backups.
- 2.9.3** Ensuring prompt execution of on-demand backups of volumes, files and database applications whenever required by the SCE or in case of upgrades and configuration changes in the website.
- 2.9.4** Real-time monitoring, log maintenance and reporting of backup status on a regular basis. Prompt problem resolution in case of failures in the backup processes.

2.10 Confidentiality of Data

Since some of the legacy data handled by [Successful Bidder] during the migration of data is classified and restricted in nature, all the team members from the [Successful Bidder]'s side must not disclose any such data.

2.11 Use of Source Code Management Tools

The [Successful Bidder] must manage its source codes through a source code management/code repository tools so that many programmers can work in parallel without duplication of work. It will also be a useful tool to track previous versions of the codes and will be useful for debugging purpose.

2.12 Ownership of Source Code and other Intellectual Property

The SCE will be the rightful owners of the Source Code and all Intellectual Property associated with the website and they will have full rights over the ways they can use these resources. The website so developed will be the sole property of SCE or any agencies designated by SCE. The Website Development [Successful Bidder] will have no right to use or apply the website elsewhere.

2.13 Naming Convention /standard

In order to keep source codes organized, [Successful Bidder] must strictly follow standards for forms, database, triggers, views, stored procedures, coding etc.

3 Terms and Condition – General

3.1 Clarification by the client on the requirements

Bidders can approach SCE, if required, for further clarification on the requirements during office hours. This will reduce the gap of misunderstanding the requirements, which becomes a trailing factor and reason for escalation of cost of the development at the later stage. Therefore, it is important for the bidders to understand the requirements in the first place. SCE will not be held responsible for escalation of implementation costs incurred by wrong estimation done by the bidder owing to inadequate understanding of the requirements.

3.2 Bidder Information

The bidder should submit a brief description of the firm's organization and outline of recent experience. Experience on relevant assignments and well knowledge of administrative functions both functional and technical will be of an added advantage. Copy of credential certificates must be enclosed.

The original and *copy (ies)* of quotation submitted by the supplier shall comprise the following:

- (a) A duly completed and signed priced quotation as per the Schedule of Items and the Priced Quotation.
- (b) A valid Trade License
- (c) A valid Tax Clearance Certificate
- (d) Technical Specification of the Goods to be supplied; and
- (e) Any other requirements specified in this document

The rate quoted shall stand valid for 30 days from the date of opening the tender. The rate quoted shall be inclusive of taxes and duties.

The selected developer must deliver the fully functional website within 2 .5 months from the date of award of the work. In the event of failing to deliver on time, the bid shall be cancelled.

The tender committee reserves the right to reject one or all bids. The decision of the tender committee shall be final and binding.

The payment shall be made to the developer only upon delivery of completed website. No advance payment shall be made.

The tender should be submitted addressed to President, Samtse College of Education, Samtse.

3.3 Patent and Copyright

- 3.3.1 The Bidder represents that the Solution or any product/component, supplied by the Bidder does not infringe any patents and copyright. If, however, a third party claims that the solution or any product/component thereunder, supplied by the Bidder under this Contract, infringes a patent or copyright (“IP Claim”), the bidder will defend SCE against the IP Claim at the Bidder’s expense and pay all costs, damages and legal fees that a court finally awards.
- 3.3.2 If the Bidder determines that no alternative is reasonably available, and SCE agrees to return the Product/Component/Solution to the Bidder on the Bidder’s written request, an appropriate compensation has to be proposed and be acceptable to SCE.
- 3.3.3 The Bidder has and will have no obligation to SCE regarding any “IP Claim” based on:
- the SCE’s modification of a Product/Component under the Solution unilaterally ;
 - use of the program in other than its specified operating environment ;
 - the combination, operation or use of a product/component under the Solution with any other product, program, data or apparatus, not furnished by the Bidder, provided that the use of such product, program, data or apparatus has not been envisaged in this Contract and such product, program, data or apparatus is solely responsible for such infringement.

3.4 Quality of Work

The [Successful Bidder] must ensure quality while implementing the website at all times. This will be evaluated by SCE in long run and this will have bearing on awarding similar Projects that are in pipeline and also those projects that will be taken by the SCE in the future.

3.5 Timely Completion

- 3.5.1 The entire work of website development should be completed within 2.5 months from issuance of the work order.
- 3.5.2 The time period of two and half months for [Successful Bidder] is for collecting requirements, designing, development, testing, data Migrations and Training of ICT personnel.
- 3.5.3 [Successful Bidder] resources will provide regular status updates in predefined SCE format and / or [Successful Bidder] defined format as desired by SCE.

4 Scope of the work

The scope of work includes for outsourcing of *Study, Design, Develop, Training and Implementation of Samtse College of Education Website*. The College expects to deal with a **single company**, who would provide ALL the elements of the solution. The company is expected to propose an integrated ICT solution, which includes studying, designing, developing, training and implementation from the scratch, which will be implemented to the College requirements.

4.1 Tentative Sitemap

4.1.1 Information about

- 4.1.1.1 Admissions
- 4.1.1.2 Academic Programs
- 4.1.1.3 Faculty
- 4.1.1.4 Research and Collaboration
- 4.1.1.5 Campus Life
- 4.1.1.6 Library

4.1.2 Information for

4.1.2.1 Prospective Students

- 4.1.2.1.1 About the College: An Overview
- 4.1.2.1.2 President's Message
- 4.1.2.1.3 Academic (Link to Academics page)
- 4.1.2.1.4 Current Students Login (links to Intranet)
- 4.1.2.1.5 Faculty Login (links to Intranet)
- 4.1.2.1.6 Alumni and Friends

4.1.2.1 Business/Media/Community

- 4.1.2.1.1 Tenders
- 4.1.2.1.2 Media pack

4.1.2.2 About Us

- 4.1.2.2.1 Preface/ President's message
- 4.1.2.2.2 About the University: An Overview
- 4.1.2.2.3 Vision and Mission
- 4.1.2.2.4 Logo
- 4.1.2.2.5 Structure of the College
- 4.1.2.2.6 Campuses
- 4.1.2.2.7 Future plans and initiatives

4.1.2.3 Admissions

4.1.2.3.1 Undergraduate Studies

- 4.1.2.3.1.1 Programs
- 4.1.2.3.1.2 Admissions criteria
- 4.1.2.3.1.3 Fees and scholarships
- 4.1.2.3.1.4 Admission form
- 4.1.2.3.1.5 Hostel

4.1.2.3.2 Postgraduate Studies

- 4.1.2.3.2.1 Programs
- 4.1.2.3.2.2 Admissions criteria
- 4.1.2.3.2.3 Fees and scholarships
- 4.1.2.3.2.4 Admission form
- 4.1.2.3.2.5 Hostel

4.1.2.4 Academic

4.1.2.4.1 Programs

4.1.2.4.1.1 Undergraduate Programs

4.1.2.4.1.1.1 B.Ed

- 4.1.2.4.1.1.1.1 Bulletin of Information
- 4.1.2.4.1.1.1.2 Admissions (link to Admissions page)

- 4.1.2.4.1.2 Postgraduate Programs
 - 4.1.2.4.1.2.1 PgDE/PgCCP
 - 4.1.2.4.1.2.1.1 Bulletin of Information
 - 4.1.2.4.1.2.1.2 Admissions (link to Admissions page) Bulletin of Information
 - 4.1.2.4.1.3 M.Ed
 - 4.1.2.4.1.3.1 Bulletin of Information
 - 4.1.2.4.1.3.2 Admissions (link to Admissions page)
- 4.1.2.5 Centres
 - 4.1.2.5.1 All Centres
- 4.1.2.6 Faculty
 - 4.1.2.6.1 Permanent/Regular Faculty
 - 4.1.2.6.1.1 Details
 - 4.1.2.6.2 Visiting Faculty
 - 4.1.2.6.2.1 Details
 - 4.1.2.6.3 Adjunct Faculty
 - 4.1.2.6.3.1 Details
 - 4.1.2.6.4 Faculty listing A-Z
- 4.1.2.7 Research and Collaborations
 - 4.1.2.7.1 Conferences and Seminars
 - 4.1.2.7.1.1 Upcoming events
 - 4.1.2.7.1.2 Past events
 - 4.1.2.7.2 Academic Research Programmes
 - 4.1.2.7.2.1 Collaborations:
 - 4.1.2.7.2.1.1 Current collaborations
 - 4.1.2.7.2.1.2 Potential collaborations
- 4.1.2.8 Publications
 - 4.1.2.8.1 Recent Publications
 - 4.1.2.8.2 Forthcoming Publications
 - 4.1.2.8.3 Publications Archive
 - 4.1.2.8.4 News and Events
 - 4.1.2.8.5 Lecture Series
 - 4.1.2.8.6 Conversations
 - 4.1.2.8.7 News and Events Archives
- 4.1.2.9 Services
 - 4.1.2.9.1 Administration
 - 4.1.2.9.1.1 Admissions Office
 - 4.1.2.9.1.2 Functions
 - 4.1.2.9.1.3 Team
 - 4.1.2.9.2 Estate Management
 - 4.1.2.9.2.1 Functions
 - 4.1.2.9.2.2 Team
 - 4.1.2.9.3 Finance
 - 4.1.2.9.3.1 Functions
 - 4.1.2.9.3.2 Team
 - 4.1.2.9.4 ICT
 - 4.1.2.9.4.1 Functions
 - 4.1.2.9.4.2 Team
- 4.1.2.10 Governance
 - 4.1.2.10.1 Organizational Chart
- 4.1.2.11 Facilities

- 4.1.2.11.1 Campus
- 4.1.2.11.2 Library
- 4.1.2.11.3 IT and Computing
- 4.1.2.11.4 Student Residences
- 4.1.2.11.5 Guest House
- 4.1.2.11.6 Sports and Recreational
- 4.1.2.11.7 Canteen
- 4.1.2.11.8 Bookshop
- 4.1.2.12 Student Services
 - 4.1.2.12.1 Student Service Office
 - 4.1.2.12.2 Mentorship
 - 4.1.2.12.3 Counseling
- 4.1.2.13 Intranet
 - 4.1.2.13.1 Student Intranet
 - 4.1.2.13.1.1 VLE
 - 4.1.2.13.1.2 IMS
 - 4.1.2.13.1.3 Circulars and Notifications
 - 4.1.2.13.1.4 Extracurricular Activities
 - 4.1.2.13.1.5 Seminars and Events
 - 4.1.2.13.2 Faculty Intranet
 - 4.1.2.13.2.1 VLE
 - 4.1.2.13.2.2 IMS
 - 4.1.2.13.2.3 Circulars and Notifications
 - 4.1.2.13.2.4 Seminars and Events
- 4.1.2.14 Terms of Use and Disclaimer
- 4.1.2.15 Webmaster
- 4.1.2.16 External Links
 - 4.1.2.16.1 All relevant links
 - 4.1.2.16.2 SCE on Facebook
- 4.1.2.17 A-Z index
 - 4.1.2.17.1 Faculty
 - 4.1.2.17.2 Staff
- 4.1.2.18 Search
- 4.1.2.19 Google Apps
- 4.1.2.20 VLE

4.1.2.22. Selection Criteria

Evaluation Criteria		
Sl.no	Criteria	Mark
1	Specific experience of the consultant relevant to the assignment:	5
2	Adequacy of the proposed methodology and work plan in responding to the Terms of Reference:	30
	a. Technical approach and methodology	15
	b. Work plan	5
	c. Organization and staffing	10
3	Key professional staff qualifications and competence for the assignment	50
	a. Team Leader	10
	b. System Analyst/Designer	15
	c. Developer	15
	d. System Tester	10
	The number of points to be assigned to each of the above positions or disciplines shall be determined considering the following sub-criteria and relevant percentage weights:	100%
	1) General qualification and education	20%
	2) Adequacy for the assignment	50%
	3) Experience in region and language	30%
4	Suitability of the transfer of knowledge (training) program:	10
5	Participation by nationals among proposed key staff (not to exceed 10 points) [Sub-criteria shall not be provided]	5
	<i>The minimum technical score required to pass is: 75 Points</i>	

Note: Companies failing to produce valid Trade license and valid Tax Clearance certificate during the tender opening or have not submitted with the tender documents will be rejected. The Technical evaluation carries 70% weightage and the financial evaluation carries 30% Weightage.

4.1.2.23 Proposal

The Proposal should clearly detail all the required information against the selection criteria mentioned above. The financial bid must be submitted in a sealed separate enveloped and it must include the full cost of followings:

- Development of SCE website as per SCE requirement
- Hosting of the website
- Training the users

The financial proposals should also list what value added services the company will offer SCE. The sealed proposals in marked envelope "Proposal for Development of SCE Website" complete in all respects should reach latest by 18TH December, 2017 at **12 pm** and the tender will be opened on same day at **2 pm**.