REQUIREMENTS FOR DESIGN, DEVELOPMENT AND MAINTENANCE OF THE WEBSITE OF DEEPAK TECH UNIVERSITY

1. **INTRODUCTION**

    The university has been established by an act XXII of 2013 of State Legislature of Assam as a State University vide Notification LGL. 149/2011/92 dated 21.08.2013 and is empowered to award degrees as specified by the UGC under section 22 of the UGC Act 1956 through its own departments.

    The University has:
    a. 8 Schools
    b. 15 Departments
    c. 16 Programmes (13 PG, 2 UG and 1 Diploma). More details can be found in ANNEXURE-II

    Deepak Tech University :

    The existing website provides basic information about the institute through various sections / web pages / images. The site provides information on history and background about the institute and presents up to date information on the administrative and academic structure, courses being offered, details about the faculty, various forms to download, results, recruitments / jobs, notices etc. The site provides information related to RTIs and press releases. The site presently lacks intranet section meant for use by restricted members of students, faculty and staff of the institute.

    Vision of the Website:
    Deepak Tech University plans to have a dynamic state-of-the-art website which would truly reflect our proposed vision, be a lively platform and add to the institute's vibrant academic environment and campus life. More details are given in this document.

2. **WEBSITE OVERVIEW**

    The site map for the present website is given under ANNEXURE-I which lays out a detailed description of various individual webpages of the website, their descriptions and their URLs.

3. **GOALS**

    The aim of Deepak Tech University website is to provide information in a clear and accessible format, promoting the best user experience possible. The website will act

as a central hub for access to all the university's information and specialized operations by its current and prospective stake holders, whom may include lecturers, students and administrators. The proposed website shall have a working blend of Web 2.0 and 3.0 technologies, along with attention-grabbing presentation of information.

Scope:

The website will require Assistant Professors, Associate Professors and Professors to be registered in the website's database. This registration will be supervised by one or more systems administrators with complete access to the website's backend. These administrators will be tasked with maintaining the website for continued functional operation as well as managing and securing the faculty online presence.

Definitions, Acronyms and Abbreviations:

TERMS	DEFINITIONS
System Administrator	A person who manages the operation of a computer system or particular electronic communication service.
Web Portal	A web portal is a specially designed website that often serves as the single point of access for information.
Backend	The back end of a website consists of a server, an application, and a database.
Database	A database is a collection of information that is organized so that it can be easily accessed, managed and updated.
Http	HTTP means Hypertext Transfer Protocol. HTTP is the underlying protocol used by the World Wide Web and this protocol defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands.
Https	HTTPS stands for Hyper Text Transfer Protocol Secure. It is a protocol for securing the communication between two systems e.g. the browser and the web server.
HTML	Stands for "Hypertext Markup Language." HTML is the language used to create webpages.
CSS	Stands for "Cascading Style Sheet." Cascading style sheets are used to format the layout of Web pages.

4. **REQUIREMENTS**

Client-oriented / Front-end requirements:

The Deepak Tech University website should be user-friendly for faculties, students and the general public, providing easy access to the most necessary information without much effort. In addition, in the event of any premature system failure or urgent update, the website should provide easy maintainability. Since the website will be accessed using a wide array of devices it must be adaptive or automatically scalable for both smartphones and computers. Below are some of the front-end requirements:

a. The website should be elegant and organized in look, easy to navigate, easy to search and visually appealing and responsive in design. It should be compatible with different modern browsers and devices.

b. The homepage should contain appropriate fonts with standard sizes, sober graphic elements and navigation widgets so that it reflects a design and feel of a website of academic institution with International Standard.

c. Some frequently visited sections like Notifications; News and Events, Upcoming Events, Tenders, Recruitments etc. should be properly highlighted on the homepage with the use of proper graphic elements / widgets / sliders / scrolling elements.

d. A user friendly and efficient Searching facility should be provided on the homepage through which visitors can search the desired content, notifications, news, faculty profiles easily.

e. Feedback Forms, Grievance submission forms, ragging complaint submission forms etc. should be provided for users to submit required information.

f. Secure login facilities should be provided to faculties through which they can maintain their profiles with a simple GUI based editor. In the profiles of the faculties, there should be provision for dynamically adding different sections like Publications, Workshops attended, Papers presented, awards, achievements in addition to the basic profile section.

g. Each Department should have web pages of their own (like a mini website) which can have different sections/tabs/pages as per their requirement. The department sites will contain information about the department like faculties, Programmes, Syllabi, Research publications, News and events etc.

h. Security, is of utmost importance; because the personal information and login credentials of teaching faculties and system administrators will be stored in the sites database, all modern web and data security standards such as *https* must be implemented in order to deter or halt the efforts of criminal entities who would wish to exploit this information.

i. The website should have provisions to implement future modules in form of web-portals or scripts to handle specific task.

j. The website must host informative links exclusively for differently-abled persons and should also incorporate screen readers.

Back-end requirements:

The Deepak Tech University website should be developed using the most modern web technologies including modern iterations of the most common web coding languages such as HTML5, CSS3 and PHP. Adaptability to multiple devices is one feature made possible by these new web technologies allowing for more dynamic, good looking and interactive web pages. With the integration of these technologies, the university's website should offer both quality and performance. Below are some of the back-end requirements:

a. There should be a powerful role-based Content Management System (CMS) for managing the website by different users. Mainly, there will be three kinds of users for managing the website - System Administrator, Department Admin and Data Entry Operator (DEO).

b. The System Administrator should be able to add / delete / update / hide / archive any content on the website through a GUI based froala WYSIWYG editor / system. All the homepage contents including menus, links and widgets should be dynamically editable by him without the requirement of understanding the underlying technology. The System Administrator will also be able to edit departmental sites, faculty profiles and all other contents which are editable by Department Admins and DEO.

c. The Department Admins should be able to edit the contents(sites) of the respective departments and Faculty List / Student List / Alumni List through a user-friendly graphical interface.

d. The DEOs should be able to add / edit / publish / archive the notifications, news, events, recruitment notices, tenders and some other frequently accessed sections of the website through a user-friendly graphical interface. Edition / Deletion of other contents by DEO should be restricted.

e. THE CMS should have a FormBuilder module / component through which the System Administrator will be able to create forms based on future requirements.

f. All the contents / pages / notifications (published / Unpublished / Archived) should be easily searchable by the System Administrator and option should be provided to publish / unpublish them on a single click.

g. Advanced backup and restore facility for System Administrator so that the site can be periodically backed up and restored, when necessary, in a hassle-free manner.

h. A log file should be maintained for the activities performed by DEO and Department Admin which shall be accessible only to the System Administrator.

i. All the passwords should be kept in an encrypted form with the application of standard encryption techniques.

j. All content edit with froala WYSIWYG editor.

5. **CONTENT DESIGN**

Website Development and Design:

a. Development on Open-Source Platform like PHP, MySQL etc.

b. Dual Language Compatible (English and Hindi)

c. Should be responsive and to work perfectly on all devices (Desktop, Laptop, Smartphones, Tablets etc.) and popular Operating Systems (eg: Windows, Linux, Android, iOS, Sailfish etc.)

d. Should be a PWA (Progressive Web App).

e. Website should comply with MHRD and GOI Guidelines (WCAG/GIGW etc.) and Quality Certification (STQC)

f.   Website should follow W3C Guidelines.

g.   Admin Dashboard should have the ability to Add / Edit / Delete the contents and need to have Admin panel feature. (For all courses / administrative activities and Recruitments)

h.   Website should be scalable for future requests.

i.   Anti-spamming feature.

j.   Additional features of live data editing, real-time data refresh including images and real-time publish and subscription using GraphQL.

k.   Dynamic Photo and Video Gallery.

l.   Should have Search Engine Optimization (SEO) facility

m.   It should provide online tracking facility for job applicants, students seeking admissions, RTI, applicants etc.

n.   Feedback form option

o.   Faculty / Staff / Student information pages / department sites

p.   Provision for submission of online application form related to recruitment of faculty and staff, etc.,

q.   The portal should support Web 3.0 (any advanced / latest) based tools such as RSS feeds, Blogs, Chats, Podcasts & social media such as YouTube, Linkedin, Facebook, Twitter etc.

r.   All logins must operate on secure protocols. It should provide support for website security audit.

s.   Separate Authentication Privileges for System Administrator and Role based authentication mechanism.

t.   User for Website & Database Management.

u.   There should be provision for individual homepages for faculty members where contents (assignments, course materials, etc.) can be dynamically uploaded and maintained by the respective faculties. There should also be a query submission section in the homepages.

v.   Should have provision for integration of open-source course management systems like Moodle in the future.

w.   User accounts should be provided to every student for submission of queries.