

SCOPE OF WORK FOR IIT JODHPUR WEBSITE DESIGN AND DEVELOPMENT

This Scope of Work (SOW) outlines the key objectives, requirements, and deliverables for the development of a cutting-edge website that will elevate our online presence and enhance user experience.

Indian Institute of Technology Jodhpur was established in 2008, to foster technology education and research in India. The Institute is committed to technological thought and action to benefit the economic development of India. Scholarship in teaching and learning; Scholarship in research and creative accomplishments; and relevance to Industry are three driving forces for us at IIT Jodhpur.

IIT Jodhpur is seeking skilled and experienced web developers who can bring our vision to life by crafting an intuitive, aesthetically pleasing, and fully functional website. This SOW serves as a guide to ensure that the project is completed successfully and meets our expectations.

Project Objectives

Our core objectives for this project are to establish an authoritative online hub that portrays IIT Jodhpur's capabilities, fosters industry connections and provides valuable resources to stakeholders. The primary objectives of this project are as follows:

- Design and Development of IIT Jodhpur Website, (including all the existing Major and Minor pages i.e., Home, Departments, Schools, IDPRs, Centers, Programs, Resources, Admissions, Research, Students, Faculty, Intranet Web app, other as required and website customisation, testing, fine-tuning, integration with ERP APIs, and Database.
- Onsite installation, Configuration, Testing and Commissioning, Knowledge, and Code transfer.
- AMC contract for Technical Support, Bug fixes and updating existing content for 1 year.
- Provide GIGW compliance certification for STQC 3 years, VAPT Audit 1 year, and CERT-In Security Audit Certificate 1 year.
- The existing website has mostly static content, but rapid updates are evident. Therefore, secure, high performance and rapid changes adopted theme is required.
- Development and maintenance of dynamic websites with Bilingual Website Management Facility.
- The website and pages must have excellent UI/UX design.

- The website should be lightweight and should take negligible time for page loads.
- The website should be cross-browser and cross-platform compatible with the latest GIGW guidelines i.e., GIGW 3.0 and STQC compliances.
- The website design and interface should be as per the industrial practices.
- The page management option should be available in the control panel where the admin can create different users & set roles or privileges for different access permissions. These users can independently upload and manage their information under their respective departmental pages.
- Front-end and Back-end should always communicate using JSON only.
- The back end should be able to produce and consume "Web Services" from various sources.
- The website should provide a comprehensive, accurate, reliable, and one-stop source of information.
- Websites should be developed with all necessary security features.
- Web security is the most important. Therefore, all necessary security measures should be taken as mentioned in GIGW 3.0 or higher and as suggested by the Data Security Council of India (DSCI).
- Each web page must have an independent update page. Any user who has an "access token" and "OTP generated" sent to his/her email address should be able to make the necessary changes.
- Database should cater to unstructured and structured data types.
- Archival Policy for old notifications, orders, results, etc.

Website Features

- Bilingual website having English and Hindi versions.
- Search Engine Optimization
- Cross Browser Compatibility & Cross Platform Compatibility
- Responsive Design
- Customized Website Management System
- Google Analytics
- Social Media Integration
- Google Fonts Integration
- Desktop Notification
- Pagination with options for sorting and searching.
- Efficient Caching Mechanism
- Bootstrap and Material Design
- Screen Reader Access
- Searching any keyword will render related pages.
- Archival policy, the information must a "time to expire". Once the information expires it should automatically be removed from the website.
- Avoid redundancy of data. The website should follow one website – one entry – one data concept.

Project Deliverables

Website Management System:

A customized, dynamic, and website-specific solution needs to be provided with the following features. The solutions shall be provided in the free domain. Domains like Drupal, Joomla, WordPress etc. would not be acceptable. The web page management should be incorporated essentially with the following modules or features:

- I. **Admin Access Module:** Facility for Creation/modification/deletion of web pages. Administrators should have complete control over all the contents, advertisements, events, and programs. Every page of the website should render content from the database only. Admin may assign a token to the user. Any user who has a token should be able to amend/update the content of the page and be able to insert new information on the same page.
- II. **Articles/Page Management Module:** A webpage can have multiple components, sections, and articles. The information stored in the database should have a "time to expire" parameter. The information on the page shall disappear whenever "time to expire" hits. However, any web page has only a single component on the page, in that case, the page itself is disabled for users whenever "time to expire" hits.
- III. **Dynamic Menus:** Menus and submenus can be created based on the page-tree as pages are added and subtracted. It should be IIT Jodhpur's main navigation items, submenu items, active items, and mega menus.
- IV. **Metadata Insertion:** This can be inserted for each page or globally, supporting different languages.
- V. **Search Engine Friendly URLs:** A rewrite engine is software that modifies a web URL's appearance (URL rewriting). Rewritten URLs should be short, readable and search engine friendly. Robot.txt should be maintained for archival pages.
- VI. **Rich Text Editor:** The text editor may be provided if necessary.
- VII. **CSS Styled Content:** All aspects of the core functionality can be styled on the website. Most extensions can be styled through CSS. However, for any reason CSS is disabled, still the content should be readable.

- VIII. **Photo:** An advanced photo management option should be developed on web pages to allow users to publish optimized quality photos on the website. Some of the unique features of photo modules will be:
- Allow uploading of Image Name, Image, Image description and Meta tags for each image.
 - Have the facility to add/delete Images in JPEG, or PNG format.
 - Accessible across all browser types, and on all different resolutions.
 - Allow creation/ deletion/ of photos in the respective department, schools, centers, IDRs etc.
- IX. **Video:** like photos (as above). Integration with YouTube as frames.
- X. **Auto Archives:** The archive section will store the older Events/News & Notices/ Publications/Advertisements etc. which can be accessible year-wise. The role of this module is to archive the older contents in a particular year-wise category section and help the user access only the fresh contents. These archives may not be applicable to all departments. Some departments like academics may require this feature. An example of archival can be seen here: <https://iiitd.ac.in/academics/ay22-23>.
- XI. **Downloads / Forms / Tenders / EOI / News & Events Module:** It will allow the Administrator to publish Downloads / Forms / Tenders / Publications/ Notifications/ Letters / News & Events on the website. Administrators will be able to View/Add/Edit/Delete them by adding Titles and Details through admin. Download / Forms / Tenders / Publication / Notifications / Letters/ News & Events will be added here.
- XII. **Inside Site Search Module:** This module will allow website visitors to search for relevant information within the website. Site search will work based on keywords and will search the entire database-driven content. Search results will be displayed in the form of a listing and will also have links to relevant pages within the website.
- XIII. **Sub-modules:** The website should be capable of hosting multiple sub-modules for different departments, schools, centers, and offices. The website should be designed in such a way that new departments, schools, centers, and offices are quickly integrated with the website with minor changes to no changes in the existing website.
- XIV. A software Bill of Materials (SBOM) is a list of all the open-source and third-party components present in a codebase. Hereby, SBOM should be maintained as a database either structured or unstructured. The backend system should indicate a red flag for any outdated list of

components which allows security teams to quickly identify any associated security or license risks.

B. Accessibility

The portal will be built to provide maximum accessibility and usability to its visitors. As a result, this website can be viewed from a variety of devices such as Desktop/ Laptop computers, web-enabled mobile devices, WAP phones, PDAs, etc. ensuring that all information on this website is accessible to people with disabilities (PWD). For example, a user with a visual disability can access this website using assistive technologies, such as screen readers and screen magnifiers.

C. Google Web Analytics

It should be possible to readily view on a daily/weekly/monthly/yearly basis the details of traffic to the website, based on geographic location, IP address as well as the number of pages viewed, the number of new visitors as well as the time spent on the viewing the website.

- (a) Google Search Console shall be provided. Search Console tools and reports help you measure your site's Search traffic and performance, fix issues, and make your site shine in Google Search results.

D. Important & Additional Links

This section will have all links to bodies/organizations associated with the IIT Jodhpur. The firm will have to develop any additional pages required that are concerned with the associated bodies/ organizations of IIT Jodhpur.

Technical Requirements

A. Technology Stack

The website will preferably be developed using the latest version of any web framework and technologies i.e., Node.js, React, jQuery, Express, ASP.NET Core, Vue, Spring Boot, Flask, Django, PHP Laravel except CMS like WordPress, Drupal & similar. The technology should not bring any extra license fee to IIT Jodhpur either front-end or back-end. It is suggested to use top professional web technologies as listed on <https://survey.stackoverflow.co/2023>. However, the final selection of web framework and technologies resides with the competent authority of IIT Jodhpur. Alternative technology stacks may be considered, subject to consultation with IIT JODHPUR and alignment with project requirements.

Frontend	<ul style="list-style-type: none"> • Develop the front end using modern web technologies to ensure responsive and user-friendly UI/UX design. • Ensure compatibility with major browsers and devices for seamless user experience. • Web frameworks and technologies should consume only JSON to display the contents. • Security is the most important feature. • Easy to navigate and frequent updates are the key features. • Component designs must be the same across the website. Example of components - https://groww-ui.netlify.app/. • Followings are the list of designs and themes for which basic ideas may be taken – <ul style="list-style-type: none"> • Dashboard Design, Elegant and Appealing - https://www.princeton.edu/ • Best Navigation & easy to use - https://www.ed.ac.uk/ • Quick Access to index- https://www.harvard.edu/a-to-z/ • Quick Search - https://www.mit.edu/
Backend	<ul style="list-style-type: none"> • The backend shall be designed following the API (Application Programming Interface) model to facilitate seamless communication between frontends and backend components. • Application should be based on components i.e.; multiple departments should not be coded into a single project. For example, a single page update should not have to compile the whole project. • Those users having access rights to change the web pages must be given a token that shall expire based on the admin's discretion. • The web page should track user activity such as IP address and his/her token.
Database	<ul style="list-style-type: none"> • Use either structured, unstructured or both databases to store website content, user data, and other relevant information. Database should fast, reliable, secure and should not bring additional cost to IIT Jodhpur.

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Website Management Methods	<ul style="list-style-type: none"> • Develop a custom method that enables authorized IIT JODHPUR personnel to manage and update website content. • Every page should act as an independent admin through Token. Users having tokens and presents inside the campus would be able to edit/insert/delete data. Outside the campus editing/inset/deleting is not allowed. The static IP address will be used to check intranet users.
Intranet Application	<ul style="list-style-type: none"> • There will be an intranet web application to maintain all important orders, notifications, office memorandum, and reports. • Each department will upload its important document for which a repository is to be created. • The example of the repository can be seen here as maintained by the DOPT. • https://dopt.gov.in/notifications/orders • https://doptcirculars.nic.in/Default.aspx?URL=dt9SYFsvHSas • Like the DOPT website, the IIT Jodhpur shall maintain various documents as an intranet application. • Users should be able to search the document by the department, by the name of the document, the content of the document, by the date of the document, and by the subject of the document as listed in the DOPT site. • Chronology and archival are to be auto-maintained in the intranet application.

B. Compliance with Guidelines for Indian Government Websites (GIGW)

The website should comply with all the guidelines that have been mentioned in the GIGW 3.0 matrix. The development agency will obtain a Certified Quality Website (CQW) and the certification of cybersecurity aspects by STQC may be done based on the "safe to host" certificate issued by the cybersecurity auditors empanelled by CERT-In/STQC or the auditors of STQC or NIC certification from the STQC Directorate, an independent testing and certification organisation of the Ministry of Electronics and Information Technology, Government of India for the website. The details of the guidelines can be obtained from <https://guidelines.india.gov.in/>.

The certification fee/charges will be borne by the agency, and it will ensure compliance & certification before handing over of the website to IIT JODHPUR.

C. Security Audit: Website Security Auditing will ensure that all the modules that will be developed will be error and hack-free. The website that will be developed will undergo a Cyber Audit Test by a CERT-In empanelled vendor. The development agency must comply with the audit reports after receiving the audit reports from the CERT-In empanelled vendor.

D. Deployment and Hosting

- ☐ The website will be hosted on the cloud server of the National Informatics Centre (NIC), or any other platform designated by the Institute. The development agency will configure the server environment and set up necessary software dependencies to ensure compatibility with the website's technology stack.
- ☐ The IIT Jodhpur will ensure proper domain registration, DNS configuration, and SSL certificate installation for secure browsing (HTTPS). The agency needs to integrate components of the Web server, website and database on the hosting server.
- ☐ In case of any hacking or attack, the development agency needs to comply with the following:
 - a. Restore the website after fixing vulnerabilities.
 - b. Submit action report to EA (Executing Authority).
 - c. Submit a root cause analysis report and suggest methods to prevent such future events.
- ☐ The agency shall prepare a draft website with the consultation of the General Manager (Systems) or his Authorized representative/team. Thereafter the layout of the website will be finalized.
- ☐ The System department of IIT JODHPUR shall verify that all website functionalities, links, and forms are operational after deployment.

E. Documentation, Source Code and Training

Upon successful deployment of the IIT Jodhpur website, the development agency shall provide the following deliverables, documentation, source code, and training to ensure seamless management, updates, and administration of the website:

1. Documentation

- ☐ The web development agency shall provide a comprehensive documentation package that IIT Jodhpur detailed instructions and Guidelines for managing, maintaining, and updating the website.
- ☐ The documentation shall cover all aspects of the website, IIT Jodhpur Website Management Methods, page management,

site administration, and more.

2. Source Code Repository

- ☐ The complete source code of the website, IIT Jodhpur frontend, backend and database components shall be shared with IIT JODHPUR.
- ☐ The source code shall be provided through a version control repository to facilitate ongoing development, enhancements, and updates.

3. Training Sessions

- ☐ The development agency shall conduct comprehensive either online or offline training sessions to IIT JODHPUR responsible for managing and updating the website.
- ☐ Training sessions will be conducted online or offline and shall cover various aspects of website management, content updates, and usage.
- ☐ Training shall empower IIT JODHPUR's personnel to confidently navigate the pages, update content, manage users, and perform routine website maintenance tasks.

F. Maintenance and Support

The development agency shall provide comprehensive maintenance and support services to IIT Jodhpur to ensure the ongoing functionality, security, and performance of the newly developed website. The following points outline the maintenance and support services that will be provided:

1. Duration of Maintenance and Support

- ☐ The agency commits to maintaining and supporting the website for **one year** from the date of successful deployment of the website on the NIC server or any other server for public use.
- ☐ During this period, the agency will ensure that the website remains fully operational, secure, and up to date with the latest packages of security patches and versions of SDK.

2. Bug Fixes and Issue Resolution

- ☐ The agency shall promptly address and resolve any technical issues, bugs, or glitches identified within the website's functionality.
- ☐ Bug fixes and issue resolution shall be carried out within a reasonable timeframe, ensuring minimal disruption to the website's operation.

3. Security Updates

- ☐ The agency shall proactively monitor and address security vulnerabilities, applying necessary updates and patches to maintain the website's security integrity.
- ☐ Regular security audits and vulnerability assessments shall be conducted to identify and mitigate potential risks.

4. Compatibility Updates

- ☐ The agency shall ensure that the website remains compatible with the latest web browsers, devices, and operating systems through necessary updates and optimizations.

5. Version Control and Upgrades

- ☐ The agency shall manage version control for the website's source code, ensuring proper documentation of changes and updates.
- ☐ Updates and upgrades to the website's technology stack shall be performed as needed to maintain compatibility and security.

6. Technical Assistance

- ☐ IIT JODHPUR shall have access to a designated point of contact at the agency for technical assistance, inquiries, and support needs.
- ☐ The agency commits to providing an immediate response to technical assistance requests received during working days.

7. Emergency Support

- ☐ The agency shall provide emergency support in case of critical technical issues that require immediate attention outside of regular support hours.

8. Backup and Recovery

- ☐ The agency shall implement automated and regular data backups to ensure data integrity and facilitate rapid recovery in the event of data loss or unforeseen incidents.

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Notes:

The agency is requested to visit the IIT Jodhpur website thoroughly i.e., <https://iitj.ac.in/>. The patterns for various departments, schools, centers, IDRsPs etc. are mostly identical. The agency shall analyze static and dynamic content. Static contents means where updates are not frequent. Dynamic content such as news, announcements, events, course lists and syllabus lists, course timetable calendars, flyers, faculty, staff, resources, results lists etc.

Exclusions:

The website does not host any complicated/large software system like Moodle, course/staff/student/faculty/fee/salary management system because the website is mostly read-only for the public and way of depicting information. The basic information of any course/ staff /student/faculty/fee/salary will be taken from the ERP system as an API (Web service).

However, the website will host staff, faculty, software, resources, and research-related etc. information based on the ERP or non-ERP system. A non-ERP system shall be developed by the agency. A non-ERP system will retain basic and fundamental information about faculty, staff, research, etc. Therefore, the agency shall create, delete, and update the database based on requirements. The agency requested to visit: <https://cse.iitj.ac.in/index.php/people/faculty-advisors>

Timeline**Phase 1: Project Kick-off and Planning**

- Duration: 1 week
- Kick-off meeting with IIT Jodhpur to finalize project scope, requirements, and objectives.
- Develop a comprehensive project plan, including timelines, milestones, and responsibilities.

Phase 2: Design and Wireframing

- Duration: 2 weeks
- Gather design preferences and branding guidelines from IIT JODHPUR.
- Create wireframes and design mock-ups for website layout and user interface.
- Review and approval of design concepts by IIT JODHPUR.

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Phase 3: Development and Implementation

- Duration: 8 weeks
- Develop the front end of the website.
- Implement responsive design to ensure compatibility across devices.
- Integrate interactive features and multimedia elements.
- Develop the backend and database.
- Implement the Website Management Methods to allow IIT JODHPUR to manage content.
- Set up role-based access control for different user roles.

Phase 4: Integration and Testing

- Duration: 2 weeks
- Integrate frontend and backend components to ensure seamless functionality.
- Conduct rigorous testing, including unit testing, integration testing, and user acceptance testing.
- Address and resolve any identified issues and bugs.

Phase 5: Security Audits and Other Compliances

- Duration: 2 weeks
- Cyber Audit Test by CERT-In empanelled vendor.
- Obtain the **Certified Quality Website (CQW)** certification from the STQC Directorate and other certificates as mentioned in GIGW 3.0 as necessary.
- Comply with the audit reports after receiving them.

Phase 6: Deployment and Hosting

- Duration: 1 week
- Deploy the website on the hosting platform specified by NCL or otherwise.
- Verify proper functionality and performance in the live environment.

Phase 7: User Training and Documentation

- Duration: 1 week
- Conduct on-site training sessions for NCL personnel on using the page

- management and managing content.
- Provide comprehensive documentation on website management and maintenance.

Total Project Duration: 03 months

Payment Terms

The total project cost for the website development services shall be divided into two payments: 80% and 20%.

80% Payment: Upon the acceptance of the final version of the website by IIT Jodhpur IIT Jodhpur, an amount equivalent to 80% of the total project cost shall be payable to the development agency.

20% Payment: Upon successful hosting of the website and completion of online training sessions for IIT JODHPUR personnel, the remaining 20% of the total project cost shall be payable to the development agency.

Terms and Conditions (Bid Participation Specification)

- Bidders show legal company registration proof documents.
- Bidding value 50% order value-based bidder completed and received website development order through GEM orders and CRAC proof.
- Bidder Registration as OEM on GEM (Legal documents show)
- Earnest Money Deposit or EMD (GFR 170, 171) (except MSME)
- Past three-year work experience & turnover
- The agency engaged in the development of the website shall possess valid proof of ownership and licenses for all software(s) utilized during the project. The use of any pirated or unauthorized software(s) is strictly prohibited and will not be entertained under any circumstances.
- IIT JODHPUR shall be passed on to the ownership or the total source code and tools used thereon.
- The agency shall ensure that they will not share source code and other

data of the website for which the agency shall provide a certificate for the same.

- The agency acknowledges that any services, tasks, or activities necessary for the completeness of the subject work, even if not specifically outlined in this Scope of Work, shall fall within the agency's scope of responsibility. The agency shall proactively identify and address any such requirements that arise during the project's course to ensure the successful completion and overall quality of the project.
- The agency shall provide an undertaking that company is not blacklisted and will complete the tender agreement within time.
- The company should have an Incorporation certificate.
- The company should have a GST certificate.
- The company should have PSU/Private work orders of above 10 lakhs in the last 3 years for at least one project.
- The company having certified developers/programmers would be given preference. Therefore, requested to provide certification details.
- The company may visit IIT Jodhpur physically if necessary or summoned by the competent authority of IIT Jodhpur.
- The company should have had a revenue of 2 CR plus in the last 3 years.
- The company should have a non-blacklisted certification from doing any work for PSUs.
- The company should provide profile details.
- The company should provide a complete and active web projects list along with the project URL and GeM order number.
- The company may provide a vendor assessment report by the Quality Council of India.

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