

**JAHANGIRNAGAR UNIVERSITY**

Savar, Dhaka, Bangladesh

**Terms of Reference (ToR)**  
**for**  
**Preparation of Business Requirement Document (BRD)**  
**for**  
**JU-PULSE Campus Automation**

Submitted by:  
Jahangirnagar University

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*“Towards a Unified Digital Ecosystem for Jahangirnagar University”*

JAHANGIRNAGAR UNIVERSITY  
Savar, Dhaka, Bangladesh

Prepared for:

Jahangirnagar University

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## Table of Contents

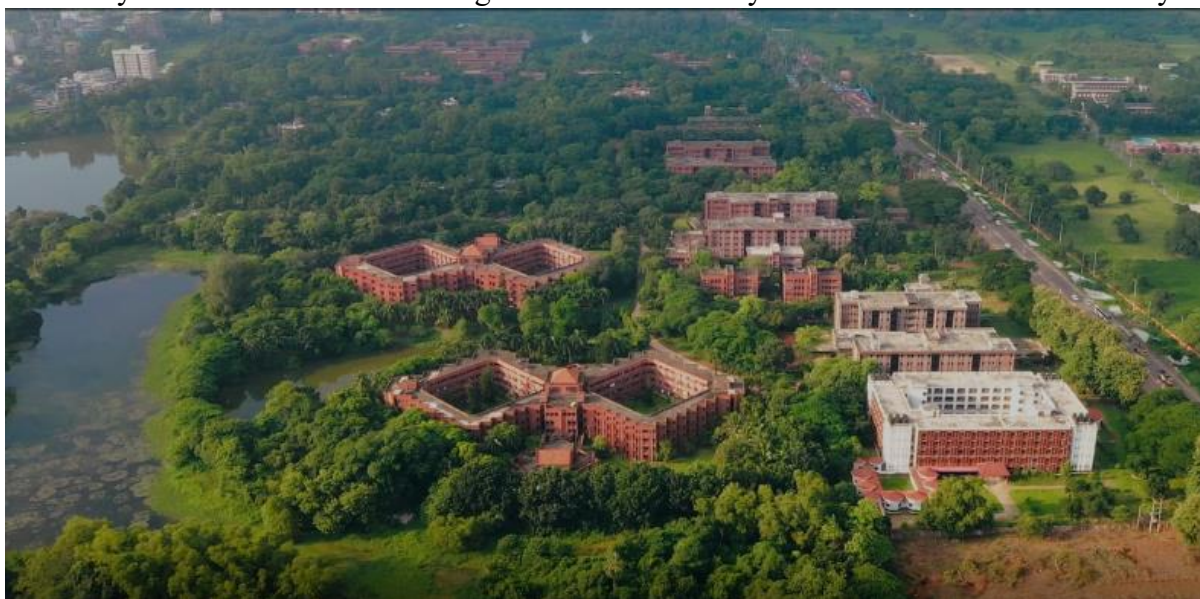
1. Background.....	1
2. About Jahangirnagar University.....	3
2.1 Campus and Environment .....	3
2.2 Academic Structure.....	3
2.3 Student and Faculty Body.....	3
2.4 Governance and Administration .....	3
2.5 Current ICT and Automation Context .....	4
3. Rationale for JU-PULSE.....	5
3.1 Objectives of the Assignment .....	5
3.1.1 General Objective.....	5
3.2 Specific Objectives .....	5
4. Scope of Work.....	7
4.1 Phase I — Inception & Mobilization.....	7
4.2 Phase II — AS-IS Discovery .....	7
4.3 Phase III — TO-BE Design.....	7
4.4 Phase IV — Requirements Engineering .....	8
4.5 Phase V — Data & Integration Requirements.....	9
4.6 Phase VI — BRD Consolidation & Prototyping Aids.....	9
4.7 Per-Module Work Breakdown .....	9
4.8 Quality Assurance, Reviews, and Acceptance.....	10
4.9 Non-Functional & Security Governance (for future implementation alignment).....	10
4.10 Deliverables & Evidence Pack (compiled into the BRD).....	10
5 Expected Outputs & Deliverables.....	11
5.1 Inception Deliverables .....	11
5.2 Process Mapping Deliverables .....	11
5.3 Design Deliverables.....	11
5.4 Requirements Specification Deliverables.....	11
5.5 Data and Integration Deliverables .....	12
5.6 Consolidated BRD Deliverables.....	12
5.7 Presentation Deliverables .....	12
5.8 Acceptance Criteria.....	12
6. Functional Requirements (Module-Wise).....	13
6.1 Modules to be Covered.....	13
6.2 Expected Coverage per Module.....	13
6.3 Consultant’s Responsibility .....	14
7. Non-Functional Requirements .....	14

8. Technology Standards & Specifications .....	15
8.1 General Technology Principles .....	15
8.2 Architectural Guidelines .....	15
8.3 Standards for Data and Integration .....	15
8.4 Security Standards .....	15
8.5 User Experience and Accessibility Standards.....	16
8.6 Future-Proofing Considerations.....	16
8.7 Consultant’s Deliverables for this Section.....	16
9. Implementation Approach.....	17
9.1 Phased Roll-Out Strategy .....	17
9.2 Integration Roadmap .....	17
9.3 Change Management Plan .....	17
9.4 Risk Management.....	17
9.5 Indicative Timeline .....	17
9.6 Resource Implications .....	18
9.7 Deliverables for Implementation Approach.....	18
9.8 Financial Plan .....	18
10 Experience, Resources & Delivery Capacity Required .....	18
11. Support, Maintenance & Sustainability .....	19
11.1 Support and Maintenance Framework.....	19
11.2 Maintenance Provisions.....	19
11.3 Sustainability Considerations .....	20
11.4 Exit and Transition Strategy .....	20
11.5 Deliverables for This Section.....	20
12. Legal, Ethical & IPR Provisions .....	20
12.1 Intellectual Property Rights (IPR) .....	20
12.2 Confidentiality .....	21
12.3 Compliance with Regulations.....	21
12.4 Ethical Considerations .....	21
12.5 Conflict of Interest.....	21
12.6 Data Protection and Retention .....	21
13. Evaluation Criteria (QCBS Method).....	22
14. Annexes.....	23

# 1. Background

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Jahangirnagar University (JU) is one of the leading public universities in Bangladesh, renowned for its academic excellence, research contributions, and unique residential character. The University was formally established in 1970 under the Jahangirnagar Muslim University Ordinance, and it began its academic activities on 12 January 1971 with only 150 students enrolled in four departments. Despite the turbulent period surrounding Bangladesh's independence, the institution quickly established itself as a hub for higher education and intellectual development. The University was later renamed Jahangirnagar University in 1973 under a new Act of Parliament, with provisions for it to operate as a fully residential public university — a model that still distinguishes JU from many other institutions in the country.



Over the decades, JU has grown significantly in scale and scope. It now accommodates more than 16,000 students, with nearly 800 faculty members across six faculties, several institutes, and over 35 departments. Its beautiful green campus, spread over more than 697 acres, is often celebrated as the most picturesque university campus in Bangladesh. The residential nature of JU, with its numerous halls of residence for students, creates a distinctive academic culture that blends formal learning with vibrant social and cultural life. The University also has an increasingly active role in national and international research, innovation, and policy engagement.

However, despite its proud history and strong academic reputation, the University's administrative and academic service delivery mechanisms remain highly dependent on manual processes and fragmented information systems. Admission, registration, examination management, hall administration, accounts, and compliance functions are still largely paper-based or use localized digital tools that operate in silos. This has created inefficiencies, inconsistencies in data, difficulties in auditing, and challenges in providing timely, student-centric services.

Some of the key challenges include:

- Fragmented systems and data silos. Departments, offices, and halls each maintain separate systems or manual records, creating duplication of work and inconsistent data.
- Manual and paper-heavy workflows. Processes like student registration, hall seat allocation, examination management, and financial approvals are slowed by reliance on physical files.
- Limited transparency and auditability. Tracking approvals, financial transactions, or disciplinary actions across multiple offices is difficult without a unified digital trail.
- Inadequate digital access. Students, teachers, and staff increasingly expect web and mobile-friendly services, but JU's current infrastructure cannot consistently meet those needs.
- Insufficient analytics. Without integrated datasets, the University struggles to generate real-time insights for decision-making in academic planning, financial management, and resource allocation.

To address these limitations and align with national priorities for digital governance and modernization of higher education, Jahangirnagar University has conceptualized the JU-PULSE (Platform for Unified Learning & Software Ecosystem) initiative. JU-PULSE is envisioned as a comprehensive campus automation platform that will unify and streamline student lifecycle management, departmental administration, examination and registrar functions, accounts and finance, hall management, proctorial oversight, women's safety and compliance, transport management, and faculty- or institute-level administration and other offices/institute and cell management.

JU-PULSE is not merely a technology project; it is a strategic transformation program that will enhance transparency, accountability, and efficiency in the University's operations, while creating a more accessible and user-friendly experience for students, faculty, and staff. By ensuring integrated workflows, role-based access, automated audit trails, and real-time data visibility, JU-PULSE will modernize how JU delivers academic and administrative services, while safeguarding institutional integrity and compliance with regulations.

The Business Requirement Document (BRD) is the cornerstone of this initiative. It will serve as the master blueprint for JU-PULSE, defining in detail the requirements, workflows, use cases, data structures, and compliance features that must guide system design and development. A clear and comprehensive BRD will ensure that the University's expectations are documented in precise, enforceable terms, reducing the risk of ambiguity, vendor misinterpretation, or delivery of incomplete solutions.

This ToR therefore seeks to engage a qualified consulting firm to conduct a thorough requirements analysis, stakeholder consultation, and process mapping exercise, culminating in the delivery of a validated and module-wise BRD. This BRD will represent the University's vision for its digital future, and will serve as the binding reference point for all subsequent procurement and implementation phases of the JU-PULSE system.

## 2. About Jahangirnagar University

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Jahangirnagar University (JU) is a fully residential public university located in Savar, approximately 30 kilometers north of Dhaka, Bangladesh. Established in 1970 under the Jahangirnagar Muslim University Ordinance, it formally began academic activities in January 1971. After Bangladesh's independence, the University was reconstituted under the Jahangirnagar University Act of 1973, which conferred upon it the status of a fully residential university. This unique character continues to shape JU's institutional identity today.

### 2.1 Campus and Environment

- Campus size: JU's campus spans over 697 acres, characterized by green open spaces, lakes, and an ecologically rich environment that sets it apart as one of the most picturesque university campuses in Bangladesh.
- Residential system: As a fully residential university, JU accommodates students in 15 halls of residence, with separate facilities for male and female students. This ensures close integration of academic and social life on campus.
- Facilities: The campus includes academic buildings, administrative complexes, libraries, IT facilities, sports and cultural centers, and research laboratories.

### 2.2 Academic Structure

JU is a multidisciplinary institution with a strong reputation in both science and humanities. Its academic portfolio currently consists of:

- Six faculties: Arts and Humanities, Social Sciences, Mathematical and Physical Sciences, Biological Sciences, Business Studies, and Law.
- Four institutes: Institute of Business Administration (IBA-JU), Institute of Information Technology (IIT), Institute of Remote Sensing and GIS, and Institute of Comparative Literature and Culture.
- More than 35 departments across the faculties.
- Specialized centers and research initiatives, including those for environment, development studies, and social research.

### 2.3 Student and Faculty Body

- JU currently enrolls over 16,000 students in undergraduate and postgraduate programs.
- The academic staff includes nearly 800 faculty members, many of whom hold advanced degrees and research collaborations internationally.
- The University employs over 1,000 administrative and support staff across its various offices, departments, and service units.

### 2.4 Governance and Administration

- JU is governed by the Jahangirnagar University Act, which provides for a Senate, Syndicate, Academic Council, and other statutory bodies.
- The Vice-Chancellor serves as the chief executive officer, supported by Pro-Vice Chancellors, Treasurer, Registrar, Comptroller, and other administrative heads.
- The University maintains decentralized academic governance through its faculties, departments, and institutes, while administrative coordination rests with offices such as the Registrar, Comptroller, Proctor, Exam Controller, and Planning & Development Office.

## 2.5 Current ICT and Automation Context

- At present, ICT initiatives at JU are fragmented, with different offices or departments using independent digital tools. Examples include locally developed software for exam tabulation, basic finance packages, and partial library automation.
- There is no single, integrated platform for managing the student lifecycle, administrative workflows, hall management, or cross-office coordination.
- ICT infrastructure is growing, with dedicated computer centers, departmental labs, and internet connectivity across the campus, but system-level integration has not yet been achieved.
- There is a strong institutional push from senior management and faculty for automation to increase efficiency, transparency, and service quality.

## 3. Rationale for JU-PULSE

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Given JU's size, diversity of academic programs, and complexity of residential and administrative operations, the University requires a comprehensive campus automation platform that addresses both academic and administrative needs. JU-PULSE is intended to:

- Reduce duplication and manual inefficiencies.
- Provide real-time data for decision making.
- Improve service delivery to students, faculty, and staff.
- Enhance accountability and compliance.
- Align JU with national priorities for digital governance in higher education.

The development of a Business Requirement Document (BRD) is the foundational step to realizing this vision. It will ensure that JU's needs are clearly articulated and that any future vendor must adhere to requirements grounded in JU's institutional history, operational realities, and future aspirations.

### 3.1 Objectives of the Assignment

The overarching goal of this consultancy is to support Jahangirnagar University (JU) in the preparation of a comprehensive, detailed, and validated Business Requirement Document (BRD) for the proposed JU-PULSE (Platform for Unified Learning & Software Ecosystem) campus automation system. This BRD will serve as the master plan for all future design, procurement, and implementation activities related to JU-PULSE, ensuring that the system fully reflects JU's academic, administrative, and governance needs.

#### 3.1.1 General Objective

To design and deliver a Business Requirement Document (BRD) that clearly and comprehensively captures all functional and non-functional requirements of JU-PULSE, ensuring that the University has a reliable blueprint for its campus automation program.

### 3.2 Specific Objectives

The consultancy is expected to:

1. Undertake requirement analysis and stakeholder engagement
  - Consult with a broad range of stakeholders, including students, faculty, administrative staff, hall authorities, exam office, registrar, comptroller, proctor's office, and senior management.
  - Collect, validate, and prioritize functional requirements from each stakeholder group.
  - Identify pain points, inefficiencies, and bottlenecks in the current system.
2. Document AS-IS and TO-BE processes
  - Map current (AS-IS) workflows in academic, administrative, financial, and compliance functions.
  - Propose optimized (TO-BE) processes that align with digital best practices and reduce redundancy, delay, or risk.
3. Prepare module-wise detailed requirements
  - Cover all 13 identified modules (Student Management, Department Management, Hall Management, Examination Office, Registrar's Office(Academic), Comptroller's Office, Proctor Office, Women's Safety &

- Compliance, Transport Management, and Dean/Institute/IQAC Offices), Library Management, Medical Center Management, Inventory Management.
- For each module, define functional requirements, workflows, use cases, data flows, reporting needs, and integration points.
4. Define cross-cutting requirements
    - Specify requirements for system security, data privacy, role-based access control, audit trails, dashboards, interoperability with external systems (e.g., UGC platforms, payment gateways, NID), multilingual interface (Bangla and English), and mobile/web accessibility.
  5. Ensure alignment with compliance and standards
    - Ensure that the BRD conforms to Public Procurement Act (2006), Public Procurement Rules (2008), and other relevant government frameworks.
    - Incorporate international standards such as ISO/IEC 25010 (software quality), ISO 27001 (information security), and WCAG 2.1 (accessibility).
  6. Prepare validation and finalization plan
    - Organize workshops to present the draft BRD to JU stakeholders.
    - Collect structured feedback and integrate it into the final document.
  7. Deliver a Final BRD
    - Submit a comprehensive, validated BRD with executive summary, detailed module requirements, annexes (stakeholder inputs, risk register, process diagrams, data models, glossary of terms), and recommendations for implementation sequencing.
    - Ensure that the document is produced in both digital format (Word, PDF, editable diagrams) and bound hard copies for archival and contractual use.

## 4. Scope of Work

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This assignment will be executed through clearly defined phases, activities, and artifacts to produce a comprehensive, enforceable BRD for JU-PULSE. The consultant must follow a disciplined requirements engineering approach with formal reviews, traceability, and quality gates; the approach aligns with GoB-style ToRs that require SRS/SDD-grade clarity, test plans, third-party acceptance readiness, and structured deployment/knowledge-transfer planning for downstream phases.

### 4.1 Phase I — Inception & Mobilization

Objectives: establish governance, scope boundaries, methods, and schedules.

Tasks (step-by-step):

- i) Kick-off & Governance Setup: confirm Steering Committee, Working Groups, decision rights, reporting cadence, and change-control protocol.
- ii) Methodology & Plan: submit an Inception Report including methodology (requirements elicitation, BPMN/UML modeling), stakeholder plan, work breakdown structure, RACI, Gantt, risk register, QA plan, documentation plan, and knowledge-transfer plan.
- iii) Repository & Templates: configure a document repository; submit standardized templates (interview guides, process maps, use-case sheets, data dictionary, RTM, risk log).

Artifacts: Inception Report (approved), templates pack, project plan.

Quality gate / Acceptance: JU approves Inception Report and project plan.

### 4.2 Phase II — AS-IS Discovery

Objectives: document current processes, systems, data, and pain points across all 13 modules.

Tasks (step-by-step):

- i) Stakeholder Elicitation: interviews, focus groups, shadowing across Students, Departments, Hall Managements, Examination Offices, Registrar's Offices(Academic), Comptroller's Offices, Proctor Offices, Women's Safety & Compliances, Transport Offices, and Dean/Institute/IQAC Offices), Library Offices, Medical Center Offices, Inventory stakeholders.
- ii) Process Mining & Mapping: draw AS-IS BPMN process maps (level 2–3), swimlanes by role; capture inputs/outputs, forms, approvals, SLAs, and exception paths.
- iii) Data Landscape: inventory data sources, registers, spreadsheets, and databases; identify authoritative sources and reconciliation routines.
- iv) Pain-Point Register: quantify delays, rework, error hot-spots, manual hand-offs; identify compliance/audit gaps.
- v) Preliminary Risks: populate initial risk register (process, technical, change).

Artifacts: AS-IS Report (per module: process maps, pain-points, data inventory, controls).

Quality gate / Acceptance: JU signs off AS-IS completeness (no unvisited units).

### 4.3 Phase III — TO-BE Design

Objectives: design improved, digital-first processes with controls and service levels.

Tasks (step-by-step):

- i) Design Principles: one-stop self-service, role-based approvals, least-privilege access, end-to-end audit trail, API-first interoperability.

- ii) TO-BE BPMN Models: optimized workflows; define service entry points (web/mobile), approval matrices, timers/SLAs, escalations, and exception handling.
- iii) Control Points & Auditability: embed pre- and post-controls (segregation of duties, maker-checker, immutable logs).
- iv) Data Models: high-level ERDs per module; canonical data dictionary; common master data (person, program, course, hall, vehicle, office, user/role).
- v) Reporting & KPIs: module dashboards; cross-module analytics (enrolment, finance, hall occupancy, exam cycle time, proctorial case turnaround, transport utilization).
- vi) Integration Catalogue: catalogue internal/external integrations needed (e.g., payment gateways, NID/SSO, UGC systems), with interface purpose, events, payloads, and security. See API governance practices (JWT, throttling, TLS, lifecycle, SSO, AMQP/REST) to be adopted at implementation.

Artifacts: TO-BE Design Pack (BPMN, ERDs, integration catalogue, KPI set).

Quality gate / Acceptance: design walkthroughs approved by module owners.

## 4.4 Phase IV — Requirements Engineering

Objectives: produce full, testable requirements that form the BRD core.

### 4.4.1 Functional Requirements — Step-by-step

- i) Elicitation: structured workshops by module; capture narratives, rules, exceptions, dependencies.
- ii) Specification: author Use-Case Narratives (actors and sequence narratives, triggers, pre-/post-conditions, main flow, alternate/exception flows, business rules); complement with user stories where helpful.
- iii) Prioritization: classify per MoSCoW (Must/Should/Could/Won't).
- iv) Validation: stakeholder reviews; resolve conflicts; freeze scope for BRD.
- v) Traceability: create a Requirements Traceability Matrix (RTM) linking business goals → use cases → functional requirements → data → reports → policy references → test scenarios (for downstream UAT). (Traceability matrix is a recognized acceptance artifact in GoB-style ToRs.)

Deliverable: Module-wise functional specs (use cases + RTM entries).

### 4.4.2 Non-Functional Requirements (NFR) — Step-by-step

Define measurable criteria and verification methods for:

- i) Security: access control, authentication, authorization, secrets management; align with OWASP risk areas (broken access control, insecure deserialization, logging/monitoring) and mandate logging/alerting for incident response.
- ii) Performance & Scalability: response times, throughput, concurrency; capacity assumptions for peak loads (admissions, exams, results).
- iii) Availability & Resilience: uptime targets, backup/restore RTO/RPO, DR posture.
- iv) Interoperability: API-first (REST/TLS, JSON), message protocols (AMQP/MQTT where relevant), token governance and rate-limiting; SSO compatibility.
- v) Data Quality: validation rules, deduplication, master data stewardship.
- vi) Usability & Accessibility: mobile-first, Bangla/English, WCAG 2.1 AA.
- vii) Auditability & Compliance: immutable logs, reportable audit events, retention policies.
- viii) Operations & Supportability: health checks, monitoring, SLA metrics, ticketing/CRM for support.

Deliverable: NFR catalogue with measurement & test methods (how each NFR will later be verified during UAT/OAT).

#### 4.5 Phase V — Data & Integration Requirements

Objectives: define data standards and interfaces to avoid rework during implementation.

Tasks:

- i) Data Dictionary & ERDs: define entities, attributes, constraints, lifecycle states; privacy classification (public/internal/sensitive).
- ii) API Requirements: publish API catalogue (endpoints, methods, schemas, auth, quotas, SLAs), lifecycle and governance requirements (documentation, gateways, policy enforcement, visibility controls).
- iii) Security of Data in Motion/At Rest: TLS for transport, encryption policies, token scopes/domain binding, payload schema validation.
- iv) Integration Scenarios: list systems for future integration (e.g., payment, identity, national services) and define data exchange patterns and prerequisites (with placeholders for JU-specific endpoints).

Artifacts: Data dictionary, ERDs, API catalogue, integration scenarios.

#### 4.6 Phase VI — BRD Consolidation & Prototyping Aids

Objectives: compile a single, authoritative BRD ready for procurement.

Tasks:

- i) Draft BRD (v1): consolidate sections: Executive Summary; Module-wise functional requirements; NFRs; BPMN/ERDs; API catalogue; RTM; risks; glossary; annexes (your gathered requirements attached verbatim, mapped to RTM).
- ii) Wireframes (where helpful): low-fidelity screens for core flows to reduce ambiguity.
- iii) Validation Workshop: walk through with each office; capture change log, adjudicate comments; issue Validation Report documenting accepted changes.
- iv) Final BRD (v2): incorporate feedback; publish master BRD in Word/PDF with editable diagrams; deliver 5 bound copies for records.

Quality gate / Acceptance: Steering Committee sign-off of Final BRD.

#### 4.7 Per-Module Work Breakdown

For each module of the Modules:

Step-by-step tasks:

- i) Stakeholder Map & Interviews: identify roles (e.g., Student, Hall Provost, Controller of Exams, Registrar, Accounts Officer, Proctor, Dean's Office staff, Medical Center, Library and others).
- ii) AS-IS Maps & Forms: collect forms/ledgers; map intake → processing → decision → archive; capture exceptions (appeals, corrections, disciplinary cases, refunds).
- iii) TO-BE Design: streamline approvals; define SLAs (e.g., transcript within X days, grievance triage within Y hours); set maker-checker rules; add audit events.
- iv) Functional Requirements & Use Cases: all the use cases with necessary sequence per complex module (example: admissions, exam lifecycle, payroll etc.) with exception handling.
- v) NFRs (module-specific): e.g., peak loads for results publication, sensitive data classes for proctorial and compliance cases, availability windows for transport schedules.

- vi) Reports & Dashboards: must/report lists (regulatory, management, operational), drill-downs, exports.
- vii) Data Models & Interfaces: module ERDs; interfaces to shared masters and external systems.
- viii) Risk & Control Matrix: identify fraud/error risks per step; define controls and evidences.
- ix) RTM Entries: map each gathered requirement and stakeholder need to BRD requirements and future UAT scenarios (supports later acceptance/OAT).

#### 4.8 Quality Assurance, Reviews, and Acceptance

Internal QA by Consultant: peer reviews of BPMN, use cases, NFR measurability, data models, and RTM coverage before submission.

Formal Reviews by JU: stage gates at Inception, AS-IS, TO-BE, Draft BRD, and Final BRD. Third-party review option for acceptance alignment mirrors government practice where testing acceptance is validated by a nominated body.

Reporting & Supervision: bi-weekly progress reporting; JU retains the right to inspect documents and progress at any time; periodic financial/progress reporting practices follow established higher-education project norms.

#### 4.9 Non-Functional & Security Governance (for future implementation alignment)

While the present contract is for BRD preparation, the BRD must be implementation-ready by specifying how NFRs will later be verified (e.g., performance tests, security scans, audit scenarios). To prevent ambiguity in future RFPs, the BRD shall include a Security & API Governance baseline reflecting practices such as: JWT, policy enforcement, multi-gateway publishing, visibility controls, rate-limiting, TLS, payload validation, SSO integration, AMQP/REST messaging, and encryption of data in transit.

#### 4.10 Deliverables & Evidence Pack (compiled into the BRD)

- Inception Report & Plan (approved).
- AS-IS Report (module-wise maps, pain-points, data inventories).
- TO-BE Design Pack (BPMN, ERDs, KPIs, integration catalogue).
- Functional Requirements (use cases + rules + reports).
- Non-Functional Requirements (measurable criteria + verification methods).
- RTM (full trace from stakeholder needs to testable requirements).
- Validation Workshop Report (decisions, change log).
- Final BRD (Word/PDF + editable diagrams; 5 hard copies (module wise) and 3 complete BRD Report).
- Annexes with your gathered requirements, mapped to RTM).

## 5 Expected Outputs & Deliverables

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The consulting firm shall be required to produce a complete set of deliverables that together constitute the Business Requirement Document (BRD) for JU-PULSE. Each deliverable must be comprehensive, validated, and presented in both digital and hard copy formats. Deliverables must be submitted in English and Bangla (where relevant), and in formats accessible for review and future procurement use (Microsoft Word, PDF, editable diagram formats such as Visio or BPMN tools).

### 5.1 Inception Deliverables

- Inception Report including:
  - Project methodology and workplan.
  - Stakeholder engagement plan.
  - Risk management and quality assurance plan.
  - Documentation templates.
- Project Plan and Repository with schedules, milestones, and deliverable acceptance process.

Format: Digital (Word/PDF) , 03 hard copies along with supporting documents.

### 5.2 Process Mapping Deliverables

- AS-IS Process Report documenting existing workflows for each module, including:
  - Current process maps (BPMN/flowcharts).
  - Data inventories and forms.
  - Identified bottlenecks and pain points.
- Risk Register (Initial Version) based on AS-IS findings.
- Format: Digital (Word/PDF) , 03 hard copies along with supporting documents.

### 5.3 Design Deliverables

- TO-BE Process Design Pack, including:
  - Optimized process workflows (BPMN).
  - Data models (high-level ERDs).
  - Integration catalogue (internal and external systems).
  - Reporting requirements (dashboards and KPIs).
- Format: Digital (Word/PDF) , 03 hard copies along with supporting documents.

### 5.4 Requirements Specification Deliverables

- Functional Requirements Specification for each module, including:
  - Use-case and sequence narratives (actors, flows, exceptions).
  - Business rules and validation rules.
  - Reports and dashboard requirements.
- Non-Functional Requirements Specification including:
  - Performance, scalability, security, interoperability, accessibility, usability, and auditability requirements.
  - Verification and test methods for each NFR.
- Requirements Traceability Matrix (RTM) mapping all stakeholder requirements to use cases and system requirements.

Format: Digital (Word/PDF), 03 hard copies along with supporting documents.

## 5.5 Data and Integration Deliverables

- Data Dictionary and ERDs covering all modules.
- API Catalogue and Integration Scenarios describing interface standards, protocols, and governance rules.
- Format: Digital (Word/PDF/Others), 03 hard copies along with supporting documents.

## 5.6 Consolidated BRD Deliverables

- Draft BRD (Version 1): consolidated draft of all sections, circulated for validation.
- Validation Workshop Report documenting stakeholder feedback, resolutions, and changes.
- Final BRD (Version 2): consolidated, validated, and signed-off document containing:
  - Executive Summary.
  - Module-wise requirements.
  - Cross-cutting requirements.
  - Data and integration specifications.
  - Risk Register (final version).
  - Glossary of terms.
  - Annexes (including JU's pre-gathered requirements).

Format (strict requirement):

- Five (5) bound hard copies of each module's BRD section (for circulation to module stakeholders).
- Three (3) bound complete BRD sets (for central University records, Steering Committee, and archival).
- Digital master copy in Word, PDF, and editable diagram formats.
- All the supporting documents and meeting reports
- All reports and documents that were approved by the stakeholders during BRD preparation, supporting documents and evidences.

## 5.7 Presentation Deliverables

- PowerPoint slide decks summarizing each deliverable, to be used in workshops and Steering Committee presentations.
- Knowledge transfer sessions to JU staff for reading, interpreting, and using the BRD in procurement and implementation.

## 5.8 Acceptance Criteria

- All deliverables must be complete, internally consistent, and validated with stakeholders.
- Deliverables must include detailed annexes, such as process diagrams, data models, and risk registers.
- Hard copy submissions must be professionally bound and indexed for easy reference.
- Digital submissions must be editable, ensuring JU retains full ownership of content for later adaptation.

## 6. Functional Requirements (Module-Wise)

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The JU-PULSE system will be organized into 13 primary modules. For each module, the Business Requirement Document (BRD) must define the full set of functional requirements, based on both the consultant's own analysis and the stakeholder requirements already gathered by the University (Annex I).

The consultant shall be responsible for:

- i) Digitizing and structuring all stakeholder requirements provided in Annex I.
- ii) Validating these requirements with users through interviews, workshops, and demonstrations.
- iii) Expanding the requirements into detailed use cases, process flows, data models, and reporting needs.
- iv) Ensuring that all requirements are traceable in the Requirements Traceability Matrix (RTM).

### 6.1 Modules to be Covered

The following modules must be addressed:

- i) Student Management
- ii) Department Management
- iii) Hall (Residential) Management
- iv) Examination Office Management
- v) Registrar's Office (Academic)
- vi) Comptroller's Office (Accounts and Finance)
- vii) Proctor's Office Management
- viii) Women's Safety and Compliance
- ix) Transport Management
- x) Dean Offices, Institutes, IQAC, and Other Offices
- xi) Medical Center Management
- xii) Library Management
- xiii) Inventory Management

### 6.2 Expected Coverage per Module

For each module, the BRD must include (at minimum):

- Functional Features and Activities: The list of what the system should do (drawn from Annex I and stakeholder validation).
- Use Case Narratives: Actor, trigger, process steps, exceptions.
- Process Flowcharts: AS-IS (current) and TO-BE (future optimized).
- Data Requirements: Entities, attributes, relationships, and required reports.
- Control and Audit Points: Maker-checker workflows, approval hierarchies, compliance checks.
- Reports and Dashboards: Operational, managerial, and strategic reporting requirements.

### 6.3 Consultant's Responsibility

- The consultant must ensure all requirements from Annex I are captured in the BRD, even if they are not explicitly mentioned in this ToR text.
- The consultant must fill in any gaps by engaging stakeholders and applying best practices from higher education automation projects.
- Where requirements conflict or overlap, the consultant must facilitate resolution workshops and document the agreed decisions in the BRD.

## 7. Non-Functional Requirements

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The Business Requirement Document (BRD) must not only capture functional workflows but also clearly define the Non-Functional Requirements (NFRs) that will guide the design, procurement, and future implementation of JU-PULSE. The consultant is not expected to develop the system at this stage, but must ensure that the BRD includes a comprehensive set of measurable NFRs that reflect the expectations of the University.

The NFRs should be organized into the following categories:

- **Performance and Scalability:** Document expected user loads (students, staff), acceptable response times, and growth projections for the next 5–10 years.
- **Availability and Reliability:** Define targets for uptime, disaster recovery, backup frequency, and maximum tolerable downtime.
- **Security and Data Privacy:** Specify requirements for authentication, authorization, encryption, role-based access, and compliance with government ICT security guidelines.
- **Usability and Accessibility:** Identify expectations for web and mobile access, Bangla and English support, and compliance with accessibility standards.
- **Interoperability and Integration:** Document requirements for future integration with national systems (NID, UGC), payment gateways, and other JU systems.
- **Maintainability and Supportability:** Define expectations for configuration, documentation, monitoring, and ease of future upgrades.
- **Auditability and Compliance:** Identify requirements for audit logs, reporting, and data retention in line with JU and government policies.

For each NFR, the consultant must:

- Define the requirement in measurable terms.
- Suggest how it can be verified or tested during later implementation (e.g., load testing, security audit, accessibility test).
- Map each NFR into the Requirements Traceability Matrix (RTM) so that JU can ensure compliance during procurement and acceptance testing.

## 8. Technology Standards & Specifications

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The JU-PULSE Business Requirement Document (BRD) must include a detailed section on Technology Standards and Specifications. The purpose of this section is to guide future procurement and development activities by defining the baseline principles, reference standards, and technology considerations that the system must adhere to. The consultant is not expected to build or deliver the system at this stage, but must ensure that the BRD provides clear guidance on the technological environment in which JU-PULSE will later be developed.

### 8.1 General Technology Principles

The BRD must set out guiding principles for technology choices, including:

- **Openness:** Preference for open standards and widely supported platforms to avoid vendor lock-in.
- **Scalability:** Ability to support future growth in users, data, and modules.
- **Interoperability:** Adoption of API-first approaches for integration with externals.
- **Security by Design:** Compliance with best practices for data security and privacy.
- **User-Centric Design:** Technology should support accessible, multilingual, mobile-friendly user interfaces.

### 8.2 Architectural Guidelines

The consultant must recommend in the BRD:

- An architecture model (e.g., layered, service-oriented, or modular microservice-based) suitable for a university-wide automation platform.
- Integration framework to allow secure data exchange between JU-PULSE and external systems (such as National ID verification, UGC platforms, and payment gateways).
- Data architecture considerations, including master data entities (student, staff, course, department, hall, etc.) and principles for data integrity.
- Hosting options (on-premise, government-approved data centers, or hybrid cloud) — with pros and cons for each, leaving the final choice to JU during procurement.

### 8.3 Standards for Data and Integration

The BRD must define:

- Data formats and protocols (e.g., JSON, XML) to be used for system interoperability.
- API standards (RESTful APIs, token-based authentication, encryption requirements).
- Message and event handling (e.g., secure queues or messaging protocols for large-scale operations).
- Data validation and quality rules to ensure consistent and reliable records across modules.

### 8.4 Security Standards

The BRD must outline:

- Requirements for user authentication (including multi-factor authentication for sensitive roles).
- Authorization models (role-based access control with configurable permissions).
- Data encryption standards (for storage and transmission).
- Audit logging and monitoring requirements (system activity logs, administrative actions, financial approvals).

- Alignment with Government of Bangladesh ICT Security Guidelines and internationally recognized frameworks such as ISO 27001.

## **8.5 User Experience and Accessibility Standards**

The BRD must define baseline expectations for:

- Responsive design across desktops, tablets, and mobile devices.
- Multilingual interfaces, with Bangla (Unicode compliant) and English mandatory.
- Accessibility standards, aligned with WCAG 2.1 (Level AA) to ensure inclusive use by students, faculty, and staff with disabilities.

## **8.6 Future-Proofing Considerations**

The BRD must recommend:

- Technology stack options (e.g., open-source vs. proprietary) with an analysis of sustainability, support availability, and cost implications.
- Version control and documentation practices that should be mandated for future vendors.
- Monitoring and analytics tools that should be incorporated for long-term operational support.
- Upgrade and extensibility guidelines to allow new modules to be added to JU-PULSE in the future without disrupting existing services.

## **8.7 Consultant's Deliverables for this Section**

- A Technology Standards Annex within the BRD, setting out recommendations and baseline requirements.
- Comparison of options (e.g., on-premise vs. cloud, open-source vs. proprietary) with clear justification.
- Guidance for procurement documents so that future RFPs can mandate compliance with these standards.

## 9. Implementation Approach

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The Business Requirement Document (BRD) must include a recommended Implementation Approach for JU-PULSE. The consultant is not expected to build the system under this contract, but must provide JU with a clear, actionable roadmap that can later guide procurement, vendor selection, and phased deployment of the automation system.

The Implementation Approach should describe:

### 9.1 Phased Roll-Out Strategy

- i) **Prioritization of Modules:** Identify which modules should be implemented first (e.g., Student Management, Examination Office, Registrar's Office) based on urgency, impact, and dependencies.
- ii) **Sequencing Logic:** Define the order in which modules should be deployed, ensuring critical modules are addressed early while dependent modules are aligned in later phases.
- iii) **Pilot Phase:** Recommend a pilot implementation (limited number of departments/halls) to test core functionalities before institution-wide roll-out.
- iv) **Full Deployment:** Describe the process for expanding the system across all departments, halls, and offices once the pilot is validated.

### 9.2 Integration Roadmap

- i) Define the order of integration with external systems such as National ID, payment gateways, UGC databases, and reporting systems.
- ii) Identify points where data migration from existing records (paper or digital) will be required.
- iii) Provide guidelines for managing parallel systems during the transition phase.

### 9.3 Change Management Plan

- i) Recommend strategies for handling resistance to change among staff and students.
- ii) Suggest a structured communication plan to keep stakeholders informed throughout implementation.
- iii) Propose staff training and orientation programs to build capacity for using the new system.

### 9.4 Risk Management

- i) Include a Risk Register identifying likely risks during implementation (technical, operational, organizational).
- ii) Propose mitigation strategies for each risk (e.g., phased training, redundancy planning, stakeholder engagement).

### 9.5 Indicative Timeline

- i) The BRD should include an indicative Gantt chart or roadmap showing:
  - o Pilot phase duration.
  - o Roll-out sequence of each module.
  - o Milestones for validation, integration, and acceptance testing.
- ii) The consultant must provide alternative options (e.g., 2-phase vs. 3-phase implementation) to allow JU flexibility in budgeting and execution.

## 9.6 Resource Implications

- i) Document the expected human resources required for implementation (both JU and vendor roles).
- ii) Identify infrastructure implications (servers, data center, storage, connectivity).
- iii) Highlight support requirements during and after roll-out (e.g., helpdesk, technical support, system monitoring).

## 9.7 Deliverables for Implementation Approach

The BRD must include:

- i) A Phased Implementation Roadmap for JU-PULSE.
- ii) A Change Management Framework with communication and training recommendations.
- iii) A Risk Register for implementation, with mitigation strategies.
- iv) An Indicative Timeline with sequencing of modules and milestones.
- v) Resource and infrastructure estimates to guide JU in budgeting and planning.

## 9.8 Financial Plan

- i) A Phased Financial Roadmap for JU-PULSE BRD preparation.
- ii) A Change Management Framework.

# 10 Experience, Resources & Delivery Capacity Required

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The EOIs would be reviewed based on the following:

(a) Organizational Eligibility:

- i) Must have a valid and up-to-date Trade license/Registration of joint stock & companies (RJSC) registration, VAT, TIN certificate. Updated TAX payment Certification.
- ii) Minimum 08(eight) years of experience in the ICT business as a registered and reputed company/entity in Bangladesh.

(b) Relevant Experience:

- i) Experience in preparing Business Requirements Document (BRD), Functional Requirement Specifications (FRS), or Process Re-engineering Documents (PRED).
- ii) Proven track record of working with student lifecycle management, academic administration, finance, HR, and research processes.
- iii) Experience of the firm in similar tasks/assignments (examples of past experience-similar nature and/or complexity)
- iv) Experience of the firm in other works (examples of other experience) and support Services.

(c) Approach & Methodology:

- i) Applicants must outline their proposed methodology, including: Steps for requirement gathering (departmental workshops, stakeholder interviews).
- ii) Approach to documentation & validation of requirements.

- iii) Strategy for ensuring stakeholder engagement across faculties, administration, and IT.
  - iv) Draft timeline for BRD preparation.
- (d) Financial Criteria:
- i) Working Capital or Credit Line(s) of the Firm
  - ii) Turnover of the firm according to audit of last 03 years (financial resources)

Submission Requirements:

- i) Company profile.
- ii) Evidence of relevant experience (project references, client testimonials).
- iii) Proposed methodology and tentative timeline.
- iv) Any value-added services (e.g., training, knowledge transfer).
- v) Management Capacity (Office Space/Logistics/Management Team/Support Staff/ brochures and other documents describing resources to carry out the assignment).

A shortlist of firm will be prepared upon evaluation of EOIs of the eligible applicants and a “Standard Request for Proposals (SRFP)” document will be issued in their favor.

## 11. Support, Maintenance & Sustainability

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The JU-PULSE Business Requirement Document (BRD) must not stop at defining current functional and non-functional requirements. It must also include a strategic plan for support, maintenance, and sustainability of the system once it is implemented. This will ensure that Jahangirnagar University can operate the system reliably, adapt to future needs, and avoid dependency on external vendors.

### 11.1 Support and Maintenance Framework

The consultant must document in the BRD:

- i) Support Models: Recommended structures for ongoing technical and functional support (e.g., internal IT Cell team, vendor-managed support, or hybrid).
- ii) Service Levels: Target response and resolution times for user issues (minor, major, critical).
- iii) Helpdesk Functions: Guidance on establishing a ticketing system or CRM tool for user support, issue tracking, and resolution monitoring.
- iv) Monitoring Tools: Specifications for system health checks, error logs, and usage analytics to support proactive issue resolution.

### 11.2 Maintenance Provisions

The BRD must outline provisions for:

- i) Routine Maintenance: Regular updates, patching, and preventive maintenance schedules.
- ii) Corrective Maintenance: Handling of bugs, errors, and configuration issues after roll-out.
- iii) Adaptive Maintenance: Adjustments required when government policies, academic structures, or financial rules change.
- iv) Enhancement Maintenance: Addition of new features, reports, or modules over time.

### 11.3 Sustainability Considerations

The BRD must clearly state how JU can ensure the long-term sustainability of JU-PULSE:

- i) Institutional Ownership: Recommend establishing an internal Campus Automation Unit or expanding the existing IT Cell to manage the system.
- ii) Capacity Building: Define training programs for staff, administrators, and faculty on system usage, configuration, and administration.
- iii) Documentation: Ensure that all future vendors provide source code, configuration manuals, and training materials so JU retains control of the system.
- iv) Financial Planning: Provide guidelines for budgeting ongoing costs (licenses, hosting, support contracts, hardware upgrades).
- v) Policy Alignment: Highlight how sustainability measures must align with JU's statutes, government ICT guidelines, and UGC policies.

### 11.4 Exit and Transition Strategy

The BRD must include a recommended framework for handling transitions in case of vendor change or technology upgrade:

- i) Handover Protocols: Define requirements for knowledge transfer, system documentation, and user training during transitions.
- ii) Data Portability: Ensure JU's ownership of data and the ability to migrate it into new systems in the future.
- iii) Avoidance of Vendor Lock-In: Encourage standards-based design and open technologies.

### 11.5 Deliverables for This Section

The consultant must include in the BRD:

- i) A Support & Maintenance Framework tailored for JU-PULSE.
- ii) A Sustainability Roadmap covering institutional capacity, financial planning, and long-term governance.
- iii) A Transition and Exit Strategy to safeguard JU's independence from vendors.

## 12. Legal, Ethical & IPR Provisions

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The preparation of the Business Requirement Document (BRD) for JU-PULSE will involve access to sensitive academic, administrative, and financial information of Jahangirnagar University. To safeguard the University's interests, the following legal, ethical, and intellectual property provisions will apply to this assignment:

### 12.1 Intellectual Property Rights (IPR)

- All documents, diagrams, process maps, data models, and any other outputs produced under this assignment shall be the sole property of Jahangirnagar University.
- The consulting firm shall have no ownership rights over the BRD or any of its contents.
- The consultant may not reuse, reproduce, or share any part of the BRD or collected data for purposes outside this assignment without prior written approval from JU.
- All source files (editable diagrams, templates, and reports) must be handed over to JU at the end of the assignment.

## 12.2 Confidentiality

- i) The consultant must maintain strict confidentiality regarding all information obtained during this assignment, including but not limited to student records, financial data, examination processes, and administrative workflows.
- ii) A Non-Disclosure Agreement (NDA) must be signed by the consulting firm and all team members prior to commencing work.
- iii) Any breach of confidentiality will result in immediate termination of the contract and may lead to legal action under applicable laws.

## 12.3 Compliance with Regulations

- i) The assignment must comply with the Public Procurement Act (2006) and the Public Procurement Rules (2008) of Bangladesh.
- ii) The consultant must also ensure alignment with:
  - o Government of Bangladesh ICT policies and data protection guidelines.
  - o University Grants Commission (UGC) requirements and reporting frameworks.
  - o Relevant international standards, such as ISO 27001 (information security) and ISO/IEC 25010 (software quality).

## 12.4 Ethical Considerations

- i) All activities must be carried out with fairness, impartiality, and respect for the rights of JU stakeholders.
- ii) The consultant must ensure gender sensitivity, inclusion, and respect for diverse groups, especially in modules such as Women's Safety and Compliance.
- iii) No data manipulation, misrepresentation, or bias will be tolerated during requirement analysis or documentation.

## 12.5 Conflict of Interest

- i) The consultant must declare that it has no conflict of interest in undertaking this assignment.
- ii) The firm must not simultaneously be engaged in supplying or developing any ICT solutions for JU that may influence or bias the preparation of the BRD.
- iii) Any potential conflict of interest discovered later must be reported immediately to JU, and JU reserves the right to cancel the contract if deemed necessary.

## 12.6 Data Protection and Retention

- i) All copies of raw data, notes, and draft documents must be securely stored during the assignment.
- ii) Upon submission of the Final BRD, the consultant must hand over all data to JU and securely delete any duplicates retained by the consultant.
- iii) The BRD must recommend policies for data retention and archival in line with JU's future automation strategy.

## 13. Evaluation Criteria (QCBS Method)

Evaluation of proposals will follow the Quality and Cost Based Selection (QCBS) method in accordance with the Public Procurement Rules (PPR 2008) of Bangladesh.

- i) Technical Proposal: 80% weight
- ii) Financial Proposal: 20% weight

Only firms achieving at least 70% of the total technical score will qualify for financial evaluation.

### A. Technical Evaluation Criteria (80 Marks)

- i) Firm's Relevant Experience (20 marks)
  - o Experience in preparing BRD or SRS for automation projects in higher education, government, or large institutions.
  - o At least 3 similar projects completed in the last 7 years.
  - o Quality of references and evidence of past work.
- ii) Understanding of the Assignment & Methodology (25 marks)
  - o Demonstrated understanding of JU-PULSE objectives and challenges.
  - o Proposed methodology for requirement gathering, stakeholder consultation, AS-IS/TO-BE mapping, and BRD preparation.
  - o Innovation and practicality in approach.
- iii) Team Composition and Qualifications (25 marks)
  - o Appropriateness of proposed team structure.
  - o Qualifications and experience of key experts (Project Manager, Business Analyst, Systems Architect, Education Expert, Finance Specialist, ICT Security Specialist).
  - o Allocation of roles and responsibilities, adequacy of staff time commitment.
- iv) Work Plan and Deliverables (10 marks)
  - o Realistic work plan with phases, milestones, and timelines.
  - o Adequacy of deliverable formats and quality assurance measures.

### B. Financial Evaluation Criteria (20 Marks)

- i) Financial proposals will be opened only for firms that pass the technical threshold.
- ii) The lowest evaluated financial proposal will receive the highest score (20).
- iii) Other proposals will receive proportionately lower scores according to the formula:  
Financial Score (Sf) = (Lowest Price / Price of Proposal) × 20

### C. Combined Evaluation

- i) The combined score will be calculated as:  
Total Score = (St × 0.80) + (Sf × 0.20)  
Where St = Technical Score, Sf = Financial Score.
- ii) The firm achieving the highest Total Score will be invited for contract negotiations.

## 14. Annexes

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The following annexes shall form an integral part of this Terms of Reference (ToR). The consultant must review, digitize (where necessary), and incorporate all information from these annexes into the Business Requirement Document (BRD). Failure to address any requirement listed in the annexes will be considered non-compliance.

### Annex I: Stakeholder Requirements (Collected Inputs)

- i) Requirements gathered from University stakeholders (students, faculty, administrative staff, examination office, registrar's office, comptroller's office, proctor office, hall administration, transport, dean offices, and IQAC, Library, Medical Center and Inventory).
- ii) These requirements have been compiled through workshops, interviews, and paper-based submissions.
- iii) The consultant must:
  - o Digitize and structure these requirements.
  - o Validate them with stakeholders.
  - o Ensure they are fully incorporated into the BRD, with traceability in the Requirements Traceability Matrix (RTM).
- iv) The hard copy of these requirements will be attached to this ToR.

### Annex II: Process Mapping Templates

- Standard templates to be used for documenting AS-IS and TO-BE processes (flowcharts, swimlanes, approval chains).
- The consultant must adopt these templates (or propose improved ones) to ensure consistency.

### Annex III: Use Case Documentation Template

- Template for writing use-case and sequence narratives, including actor, trigger, preconditions, main flow, alternate flows, exceptions, and post-conditions.
- The consultant must prepare all functional requirements for each module using this template.

### Annex IV: Glossary of Terms

- A glossary of key terms, acronyms, and definitions to ensure common understanding across stakeholders.
- Examples: BRD, RTM, BPMN, ERP, AS-IS, TO-BE, NFR, etc.

### Annex V: References and Guidelines

- List of applicable policies, standards, and guidelines, including but not limited to:
  - o Public Procurement Act (2006) and Public Procurement Rules (2008).
  - o Government of Bangladesh ICT Policy and Security Guidelines.
  - o University Grants Commission (UGC) reporting standards.
  - o International standards (ISO/IEC 25010 for software quality, ISO 27001 for security, WCAG 2.1 for accessibility).