

Appendix A

1. SCOPE OF WORK, DELIVERABLES & TIMELINES

The primary project objectives of University MIS are:

- 1** To create a robust system to manage Pre-Admission, Admission, Examination & Result (Student life cycle), HRMS , Finance, Administrative & Other activities of University for error free and timely completion of academic session.
- 2** To facilitate proper and accurate report generation through provided e-Governance ERP platform based analytics for the Vice-Chancellor, senior administrative authorities & other users for monitoring and quick decision making.
- 3** Induction of transparency and accountability in operations
- 4** Reduction of redundant workload of department employees
- 5** Electronic security and control of confidential data
- 6** Fast disposal of stakeholder grievances
- 7** Dissemination of information as per public requirements
- 8** Protecting the interest of all the stakeholders
- 9** Providing interfaces to all stakeholders for communicating with the University (i.e Student Portal, Employee Portal, College Login, State portal for various report generation)
- 10** Uniform application of all state Universities with a vision to provide ease of functioning
- 11** To link education with employment by providing educated youths with necessary Quality Information in time.
- 12** Development of capacities that are needed to accelerate growth and development of youths
- 13** To provide e-Library facility to the students and research scholars at very nominal cost
- 14** To bring Improvement in the internal processes of Universities to achieve efficiency through induction of technology.
- 15** To reduce the errors in the legacy manual system

To increase the transparency in enrolment process, higher standard of services through online processes, accuracy of students data, with high end security for Students mark-sheet/ certificates to be provided in Digi-locker. The ERP system shall be integrated with Cloud Network in order to replace the existing manual paper based system

1. Hardware/ Networking Module

- Development of State Data Centre (Primary)
- Development of Secondary Data centre at each University

And/or

- Hosting on Cloud Platform

2. Software Solution

- Implementation of University & State Higher Education e-Governance ERP Solution
Detailed level of SOW is mentioned in Part-2 of EOI document.

- We are looking for an Enterprise level solution. The project requirements given here is a high-end view and only indicative in nature. Solution provider is expected to follow Industry standards for project implementation. Solution provider is expected to perform the requirements study of the University departments, sections, offices and proposes to implement an integrated E-Governance software solution. KELTRON reserves the right to implement project in a phased manner.
- A reliable Data Centre services has to be in place to run the automated system and various other reasons aiding the University to function optimally. Data Centre should assure business continuity to minimize any chance of disruption. Information security should be impeccable, offering a secure environment minimizing any chances of a security breach. The Data Centre should be with high standards for assuring the integrity and functionality of its hosted computer environment. Cloud Hosting can also be adopted instead of State Level and University level Data Centers, subject to Technical and financial feasibility of the project. For taking a just decision by the department bidder may provide separate cost for each scenario. Periodic data backup must be provided to the individual universities and the state Government by the agency undertaking the work.

2.4 Study, Analysis, Design, supply, Installation, Customization, integration of modules and implementation as listed under section for “functional requirements”

- The solution will be designed to analyze and facilitate strategic and operational activities in the Universities and its affiliated colleges. The system reports from the ERP shall improve efficiency and effectiveness of decision making. The system shall incorporate the best practices followed in each University’s Activity, reflecting the provider’s interpretation of the most effective way to perform each business process.
- The Bidder shall document the business processes to be implemented as part of “University Management Information System“ for an initial period of 7 years in the form of a Facility Management Service.

• IMPLEMENTATION PLAN	
<ul style="list-style-type: none"> • Phase 1 • State Data centre with Cloud Integration 	<ul style="list-style-type: none"> • Delivery & implementation of server, storage, middle-tier and support subsystems for high availability • Integration of ERP Software Module platforms with State Data Centre systems & networks • Delivery & implementation of core software • Delivery of 1st technical, super-user and functional training
<ul style="list-style-type: none"> • Phase 2 • Implementation of Cloud hosting/ University & State Data centre & ERP software in all the Universities with Cloud Integration 	<ul style="list-style-type: none"> • Delivery & implementation of user-end systems • Integration of user-end systems with Cloud and/or core State Data Centre platforms • Delivery & implementation of core software modules • Supervise and support data conversion & migration
<ul style="list-style-type: none"> • Rollout Core Systems 	<ul style="list-style-type: none"> • Delivery of 2nd technical, super-user and functional training
<ul style="list-style-type: none"> • Delivery of Technical Training 	<ul style="list-style-type: none"> • Delivery of Technical Training to End users

- Roles and Responsibilities

2.5.1 The Bidder shall be responsible for the following.

- Nominate a senior person in the capacity of a Project manager, who will serve as the single point of contact for the department.
- Plan and execute the project through suitably qualified technical team.
- Finalize the detailed requirements and suggest process improvements, which shall be implemented as part of University Management Information System.
- Develop Test Plan (including test case and expected results), carry out necessary acceptance tests including certifications (as may be applicable) and report the test results including satisfactory conformance to requirements.
- Provide User Manuals & Training for each of the ERP modules .
- Provide Data Migration Design documentation &
- Perform Data Migration & Data Entry of Master data
- Supplier to Provide training to the end users (including workshops for the participating institutions) and also develop Training materials
- The selected bidder shall place an agreed minimum number of qualified staff at the Department headquarters besides extending back office technical support from their development centers during the project duration to meet their obligations under this engagement.
- The selected bidder agrees to make rectification of any defects or shortcomings in the application that are part of the agreed requirements.
- In the event of a major scope change involving significant time and effort over and above routine maintenance and support, the selected bidder shall facilitate the assessment of impact to technical matters, timelines, cost and also justify the effort involved. Further, the bidder agrees to implement these changes after approval of the competent authority.
- At the end of Maintenance and Support period, the Bidder should help in smooth transition of the Project.

2.5.2 The User Department shall be responsible for the following:

- Nomination of a State nodal officer for this project and Project Management Team at State level.
- Nomination of nodal officers at each University.
- Carry out project tasks, which fall under the Departmental responsibility, within reasonable time limits, particularly in matters related to reviews, approvals, acceptance, etc.
- The nodal officer shall interface with the Bidder, to provide the required information, clarifications, and to resolve any issues as may arise during the execution of this Contract.
- Interact with all participating Universities for adoption of the proposed ERP solution.
- Report technical issues to the bidder personnel for resolution.
- Provide seating space and basic office amenities to limited number of bidder personnel who will be involved in the course of the project.
- Provide access to personnel, data and such other things to enable bidder carry out their obligations as agreed in the work (project) plan or at the request of the bidder project manager.
- Raise formal requests for changes to software and conform to the agreed process in approving and implementing these changes.

2.6 Software, Data and Hardware

- The software licenses provided by supplier shall be the property of KELTRON after the successful expiry of the contractual period and related payments.
- The Vendor shall ensure the provision of appropriate and adequate security levels, for protection of such data and other technology resources, which shall come into its custody during the implementation of the proposed solution.

- The infrastructure for the proposed solution, at each of the sites, created under this project, shall be strictly and exclusively used by the Vendor for processing data related to the University only. Under no circumstances shall the Vendor use the infrastructure for any other purpose.

2.7 IT Infrastructure:

- The proposed IT infrastructure for data center/Cloud should have following details:
- Server's with adequate redundancy/fail over.
- Storage for complete solution.
- System software - database software and operating system etc.
- NOC center to monitor & support all the universities
- Appropriate BMS and surveillance& Access solutions to the hosting environment.
- Remote Monitoring.
- L2 Distribution switch and LAN networking if hosting is being in a Data center
- All Individual Universities will Provide following infrastructure for the project
- Internet Leased line with a minimum of 100Mbps bandwidth
- Required users PCs, Printer, UPS etc.

2.8 Documentation:

- The Bidder shall be responsible for making the complete process study to the satisfaction of the University and prepare a SRS document and get sign off, based on SRS designing the software system accordingly, installing and implementing the University Management Information System, entering the base data (including master data), migrating the data available in digital form to the University Management Information System for 7 years in the form of a Facility Management Service Extendable. The Bidder may suggest technically superior alternative, wherever applicable, along with the explanations.
- It is the responsibility of Vendor to provide at least the following documents to Universities and Education department:
 - System Requirement Specification (SRS)
 - Gap Analysis Document (GAD)
 - Customization
 - User Acceptance Test Plans
 - User Manuals

2.9 Guaranteed Uptime:

- Application shall ensure a guaranteed uptime of not less than 98%.
- However, the system shall be maintained in such a manner that on no occasion the system shall be down without prior information for more than 4 hours at a stretch and 20 hours in a calendar month. The same shall be construed as failure of Software to rectify the system within the stipulated period.

2.10 Project and Technical Risk Management Plan and Procedures Uptime:

- The Vendor will be responsible for assisting the University in identifying and assessing potential technical risks of the project as well as identifying and managing actions to avoid, mitigate, or manage those risks. The Vendor is responsible for providing appropriate methods, tools and techniques for active identification and assessment of project technical risk; development of risk avoidance, mitigation or management strategies; and monitoring and reporting of risk status throughout the life of the project. The University shall fully co-operate with the Vendor in this regard.

2.11 Services & Service Level Requirements:

- The total outsourcing model includes service requirements related to the solution for the Universities, within scope of this Bid. The services would be limited to software installation, maintenance, administration, , user support and training.. The general working hours for the reference of the services are from 0930 Hrs. to 1830 Hrs (Monday to Friday). However, the service availability for certain critical functions are a must as and when requirement arises which include the administrative functions and the support services on 24x6 basis. Services shall include standard maintenance services, complaint tracking and record keeping.
- The turnaround time expected for all the scheduled services shall be defined at the time of finalization of SLA/ Mo U with the Vendor, which for non-scheduled services (within working hours) is 1 day and during non-working hours is before the end of next working day. If however complaint is lodged on the last day of the week it should be rectified before end of the subsequent working day. The critical functions defined above cannot have any failure, and thus proper redundancies must be built in to the solution design.
- The Vendor shall arrange centralized Help Desk service at each University, as well as centralized grievance management system/Call Centre, covering complaint registration, resolution & tracking services to support service calls for ERP software. The help desk as well as Grievance management system shall also include the generation of trouble tickets and submitting unresolved problems to the appropriate internal service providers.
- The Vendor shall assemble and create regular reports on the performance of application functions and enable continuous improvement of the in-scope services that the University receives. Routine meetings and reporting processes must be defined to ensure a smooth interface and timely resolution of issues.
- The University requires a single interface to coordinate the delivery of all services from the Vendor. There must be routine and continuous interaction between the Vendor's staff and the users at the University location. They shall contribute significantly to bridge gap between the users, the University and Vendor's management.

DETAILED SCOPE OF WORK

a. **TASK I : Detailed Process Study (Maximum Two Months)**

Detailed analysis of the existing systems, whether automated or manual. This shall include analysis of documentation in use, detailed information requirements, reporting procedures and formats, reporting levels, coding and classification being followed etc.

Identification of unique data elements their size, format, source, use and sequence of data storage, data volume, its frequency of updating, responsibility of the department/sections for updating, inter-system flow of data, current volume and growth rate etc.

b. **TASK II : System Configuration and Implementation items : The Bidder is expected to Configure and Implement the proposed system keeping in view the following points(Maximum Three Months)**

- a. Ensure quick retrieval/ access and also improving response time.
- b. The system should be completely menu driven and user friendly in all respects using University and its stack holder. It should support point and click technology with minimum data entry/typing.
- c. As far as possible it should be single on-line application with single point data capture and Cloud based global access Software Solution.
- d. It should be robust system which is crash proof, fail safe, easy to restore and secure.
- e. While configuring and implementing the system for the deployment of proposed Application software, the Bidder consider and utilize the work already done by the University in this field. This factor should also be considered while estimating the cost.
- f. Maximum level of parameterization to meet the frequent need for changes without disturbing the software.

- g. Provision to review report on screen. Both horizontal as well as vertical scrolling available while viewing some reports
- h. Provision to mark reports optional or mandatory through parameters.
- i. User access should be there based upon their functional areas like Clerk, Assistant, Superintendent etc. and User level should be assigned to each user depending upon his functional areas. Role based security should be implemented
- j. User-Id and password should be allotted to each user so that no unauthorized person can work on the machine.
- k. Access to menu items for execution should be restricted up to user level.
- l. Provision for temporarily disabling users against unauthorized use.
- m. Locking of user screen provision should be there. Auto locking of screen also should be allowed if no activity is performed for specified time.

c. TASK-III : Data Load and Acceptance Testing(Maximum Two Months)

After completion of the above tasks, the Bidder shall be asked to implement the Systems. System Implementation for each application shall include

- Collection and preparation of data
- Data entry and validation
- Trial run with live data for 6-8 weeks under actual conditions. The duration of the trial run for the system shall be mutually decided by the University and Bidder keeping in view the complexity of the system
- Implementation of systems and handing over to the users for acceptance and operation
- Preparation of user Manual.

d. TASK-IV : Training(During the course of implementation)

The Bidder shall provide training on appropriate aspects of the Software per module at appropriate location of the concerned department to System Analysts, Programmers, Operating staff, Senior executives etc of the user department or such other persons nominated by the University

e. TASK-V : Maintenance of Application Systems

Maintenance of Application Systems shall include:

- Maintenance of the Application systems during warranty and support period i.e. for a period of 7 years from the date of MOU, during this period system will be supported for any issues as reported by the users.
- Maintenance of the Application Systems after the expiry of the warranty period on agreed terms.
- For development of any additional, functionality or report programs or to undertake substantial modification/changes, charges may be indicated separately.

Tasks mentioned above are indicative only and may undergo change at the time of Award of workorder.

f. TASK-VII: Data Centre

The bidder shall create a Data Centre with servers integrate with existing Network and/or implement cloud to be made accessible through intranet as well Internet, System Security (including Firewall and Antivirus) Components, Storage media (SAN/NAS) etc. suitable to guarantee the performance requirement in a cost effective manner.

Establishment of State Data Centre

- Establishment of Centralized Primary Data Centre
 - > Server
 - >Firewall

Establishment of University Data Centre



- Establishment of Secondary Data Centre in each University
- Data Centre related Accessories

B. HIGH LEVEL FUNCTIONAL REQUIREMENTS

List of the Programme and Student Strength

Courses List		
S. No	Courses	Approx No of Candidates
1	Post Graduate	55,000
2	Graduate	4,25,000
3	Vocational	60,000
4	Ph.D	700

B.1 SPECIFICATIONS OF MODULAR STATE DATA CENTRE

S No	Item Description	Quantity Required
1	 The integrated Data Centre Racks should have facility of inbuilt Cooling System, Fire Detection System, Fire Suppression System, Access Control System, and Enterprise Grade Monitoring. AC component of the System should be with N+N redundancy.	05 of Unit 42u
2	 Integrated Data Centre Racks	Racks

	<ul style="list-style-type: none"> ✚ The integrated Data Centre Racks (20 kW Rack Solution of 42U Racks and minimum total usable space 67 U) shall be a self-sufficient Data Centre with rack based infrastructure approach and optimized system solution. It should have provision to easily (without any disruption to existing infrastructure) add an extra Rack for usable space in future. ✚ Integrated Data Centre Racks Power Distribution System, Rack-mount ✚ All Racks should be able to provide housing for IT equipment of minimum power consumption of 30 kVA. ✚ On initial start-up or restart after power failure, each operational load is sequenced with a minimum of one second delay to minimize total inrush current. ✚ Rack Power Distribution Units (PDUs) shall provide power distribution for IT equipment installed in server racks. The PDU rating should be 48 Amps x 2 circuits per rack. ✚ The PDU shall be mounted vertically in the racks and occupy zero U of rack space. Units that are mounted vertically shall be optimized to fit in the racks. PDU shall have IEC industrial socket for input power connection and combination of IEC 19/13 (40 Nos) and Indian 3 pin 6/16A (20 Nos) sockets for output connections. Each rack shall have two such PDU's ✚ Rack should have redundant electrical system with essential breaking MCCB, provisioning of incomer cable and commissioning of the same. Data Centre electrical delivery path will have 19" Rack mounting electrical panel box complying with Indian relevant electrical codes for Panel fabrication and support structure. 	
<p>3</p>	<p>Cooling System for 30kW Rack Solution with Redundancy (N+N)</p> <ul style="list-style-type: none"> ✚ The racks should be equipped with closed loop cooling system to provide uniform, effective cooling for blade servers, SAN and associated equipment installed in the racks. ✚ Closed loop cooling systems should be able to cool the equipment of 20 kW uniformly mounted on 1st U as well as 42nd U. Cooling system should be in N+N topology. <ul style="list-style-type: none"> a) Refrigerant R 410A b) Cooling Operating Range : -5 / +40 °C ✚ The sequence controller should run one cooling unit at a time, and perform a changeover, in case of failure of any of the cooling units. Location of placing outdoor unit is 9 Meter vertically high from the Data Centre floor. ✚ Supported with N+N redundancy to maintain temperature / humidity profile as per relevant ASHRAE standards. 	
<p>4</p>	<p>Rack Access Control System</p> <p>To avoid emergencies during power outage, all IT racks should have mechanical numeric locking system at all the front doors open-able with a master key which shall supersede electronic lock system.</p>	
<p>5</p>	<p>Rack-mountable Fire Detection and Suppression System</p> <ul style="list-style-type: none"> ✚ Fire detection and fire suppression system should be an in-rack built-in feature of the solution. It should have access sensors and fire suppression unit and the fire suppression agent used should be NOVEC 1230. The Fire detection and suppression system should be equipped with fire panel, with actuator, discharge nozzle, piping complete with accessories. The system should include a manual abort option. This device should be monitored using potential free contacts. It should have possibility to expand in future. 	

	<ul style="list-style-type: none"> ✚ The design, equipment, installation, testing and maintenance of the Clean Agent Suppression System shall be in accordance with the applicable requirements set forth in the latest edition of the NFPA Standards. ✚ Alarm: Audio visual alarm in case of fire and failure of Cooling System. 	
6	<p>42U Rack Specifications</p> <ul style="list-style-type: none"> ✚ All the racks will be used to mount and house all servers, storage and network devices in the Data Centre. The rack has to be designed to meet the safety requirements of a modern Data Centre. Both the front and rear door should have a comfortable handle with locking options. The rack should be suitable for buying to a high performance cooling rack with automatic door opening system integrated for emergency purposes. Cable entry should be via the gland plate without affecting the climatic conditions inside the rack. ✚ The solution should include blanking panels for blocking the empty U. All front doors must be equipped with automatic door opening system in case of cooling failures. ✚ Rodent Repellent required for Cabinet. 	
7	<p>Remote Monitoring System with Graphical User Interface with email and SMS Alert</p> <ul style="list-style-type: none"> ✚ The monitoring system should be rack mounted and the following devices: ✚ Temperature / Humidity, Water Leakage, Fire Detection & Extinguishing, Air-Condition Units, Smoke Sensors and Door Access Sensor. It should provide a single TCP/IP interface for remote monitoring of all components and generate email alerts and warnings. 	

B.2 SPECIFICATIONS OF SECONDARY DATA CENTRE (Required for each University)

S No	Item Description	Quantity Needed
1	Branch Firewall / Servers: Supply, Installation, Configuring, Testing & Commissioning of Branch Firewall / Database Servers as per technical specification mentioned 2 years OEM warranty as per the requirement & complete in all respect and as directed to the satisfaction of Department& SAN Box	2
2	Branch Router: Supply, Installation, Configuring, Testing & Commissioning of Branch Router with 8GE (w 2x SFP), 4G RAM, 8G Flash. Includes external power supply and cable 3 years OEM warranty as per technical specification mentioned as per the requirement & complete in all respect and as directed to the satisfaction of Department	2
3	Access Switch: Supply, Installation, Configuring, Testing & Commissioning of Access Switch with 24-port 10/100/1000BaseT, 4 x 1/10G SFP/SFP+ 3 years OEM warranty as per technical specification mentioned as per the requirement & complete in all respect and as directed to the satisfaction of Department	4

4	POE Switch: Supply, installation, testing and commissioning of 24-port POE switch with 3 years OEM warranty as per the technical specification mentioned as per the requirement & complete in all respect and as directed to the satisfaction of Department.	3
5	Modular Rack: Supply, Installation, Configuring, Testing & Commissioning of 36U Modular Rack with as per technical specification mentioned as per the requirement & complete in all respect and as directed to the satisfaction of Department	2
6	Power Backup (30KVA) N+1	2

B.3 SPECIFICATIONS OF SOFTWARE MODULES

S No	Functional Areas	Key Requirements
1	Admission Management	1. Online Registration- Prospective Students register for programs and uploading students credentials based on which admission management process is triggered.
		2. Merit List - Admission Category wise seats handling, custom rule-based short listing, counseling, documents verifications and admission conformation at university level.
		3. Entrance Exam- Handling offline entrance exams and generating merit list based on them.
		4. Admission Process- Collection of Fees, Assignment of roll numbers, ID Card generation at university level.
		5. Admission Cancellation/Transfer- Handling admission cancellations and transfers of students.
2	Student Enrolment Module with Eligibility, Migration and Transcripts Eligibility Module	Set eligibility process in the system. Check login credentials of Academic section if OK allows access to system. Steps to set the process are
		1. Enter details from the provisional eligibility form filled by a particular student in the system.
		2. Accept and validate the data.
		3. Devise the numbering system for eligibility case number.
		4. Design the eligibility certificate
		5. On validation print and issue eligibility certificate
		6. Confirmation of Eligibility
		7. Issue final confirmation of admission (Link to declaration of results i.e. Withhold the result if not confirmed)

8. Save data into database.

Enrolment Module

Set enrollment process in the system. Check login credentials of Academic section if OK allow access to system. Steps to set the process are

1. Get the application form filled by the student at the respective college.
2. Enter details from the application form into the system.
3. Accept the data. System should implicitly check for the re-registration cases.
4. Devise the numbering system for issuing registration number.
5. Design the registration card.
6. On validation print and issue registration card.
7. Save the data into database.
8. In addition design and maintain student register.

Migration

Set Migration process in the system. Check login credentials of Academic section if OK allows access to the system. Steps to set the process are

1. Get the migration form duly filled by the student.
2. Enter details from the application form into the system.
3. Accept and validate the data. System should implicitly check the passing records of the respective student & confirmation of Admission / Eligibility.
4. Design the migration certificate.
5. On validation print and issue migration certificate.
6. Save the data into database.
7. In addition provision should be made to issue duplicate migration certificate

Transcripts

Set Transcript process in the system. Check login credentials of Academic section if OK allows access to system. Steps to set the process are

- 1 Get the transcript form duly filled by the student.
2. Enter details from the application form into the system.
3. Accept and validate the data.
4. Design the transcript certificate.
5. On validation print transcript certificate.

3	Course Management	<p>All the prerequisite transactions shall be done by system administrator before academic and examination section utilizes the system. Check login credential of system administrator if OK allow access to system. The list of events to be executed by Administrator are</p> <ol style="list-style-type: none"> 1. Define courses conducted by the university under different categories. Those are Under- Graduate, Post-Graduate, Professional and diploma courses. 2. Define course structure or scheme of examination for each of the courses under all the categories. 3. Define papers included under each of the courses. 4. Enter details of the papers such as its nomenclature, paper type like Theory or Practical etc. 5. Enter the marks details for each paper type which includes max, min marks for passing etc. 6. Define passing, gracing, and exemption logic for each course separately. This shall also include various checks such as even and odd semester passing criteria for some of the courses, sports and grace marks etc. 7. Validation of student's eligibility for taking a particular course. 8. Enter the details of all the colleges/Institutions affiliated to University. 9. Link the courses conducted by individual university/college. <p>Any changes in the above listed events should be updated in the system by administrator or primary user of a particular section in the following cases.</p> <ol style="list-style-type: none"> 1. Modification of existing course by introducing new subject / syllabus / paper. The administrator should be able to attach the new course structure to an existing course conducted by University keeping the old structure as valid and its applicability. 2. Multiple course structure attached to the same programme. 3. Changes in the pattern or duration of programme. <p>Changes in the Course structure shall result into defining new course structure for existing students. The list of events in this case can be listed as below</p> <ol style="list-style-type: none"> 1. Provision should be kept in the system wherein a student having backlogs of an
4	Examination Management	<ol style="list-style-type: none"> 1. Complete Pre and post Examination Management Process. <p>Set Pre-Conduct Procedure of examination. Check login credentials of Examination Section if OK allows access to system. Steps to set the process are</p> <ol style="list-style-type: none"> 2. Selecting the panel of examiners as per ordinance from master panel. 3. Appointment of chief conductor for the examination centre

4. Appointment of examiners including reserve examiner
5. Design exam form
6. Select examiners for paper setting, assessment, evaluation, revaluation, dissertation, practical etc separately.
7. Online submission of examination form / capture of examination details of the student along with fees collection.
8. Generate seat numbers & print hall tickets, student register & other related reports.
9. Preparation of remuneration bill of the paper-setter's & examiners.
Set Conduct procedure of examination. Check login credential of examination section if OK allows access to system. Steps to set the processes are.
1. Exams conducted at various centers.
2. Generate code numbers & Mark Input forms
3. Printing of OMR Answer books along with attendance sheet & other details received by university.
4. Transfer code numbers on answer books.
5. Student's exam attendance along with answer sheet numbers is updated in the system.
6. Answer sheets along with marks input forms are assigned for checking to various evaluators / faculty members in centralized mode or across colleges.
7. Receipt of Mark Input forms from respective examiner.
8. Examiner would enter the Practical marks on the system and automatically consolidation can happen in the system.
9. Provision of double entry of marks / scanning in the system.
10. Keep provisions for multiple evaluations (also section wise).
11. Record the cases reported on unfair means.
12. Provision of Online On-screen Marking system.
Set Post-Conduct procedure of examination. Check login credentials of examination section if OK allows access to system. Steps to set the process are
1. Enter the marks from mark input form into the system.
2. Allocation of entitlement marks.
3. Process the results. System should run the gracing and logic engine implicitly to process the results.

		<p>4. The result format changes from course to course. System Administrator should be able to design/modify the format as and when required.</p> <p>5. Prepare and print result register, marks card, passing certificates etc.</p> <p>6. Provision for revaluation and verification.</p> <p>7. Payment of remuneration to the examiners.</p> <p>8. Print Provisional degree certificates as per the request.</p> <p>9. Statistical record to be maintained.</p> <p>10. List of ranker / topper and awarding for scholarships / medal as per the endowments.</p> <p>11. Mailing of result to the students.</p>
5	Student Portal	<p>1. Access through student ID & password</p> <p>2. Updating of personal information (Residential address, contact details)</p> <p>3. Inbox facility</p> <p>4. Examination notification and time table</p> <p>5. Hall ticket information and hall ticket printing facility available on the portal</p> <p>6. View examination result and related analysis</p> <p>7. Convocation notification</p> <p>8. Request for duplicate documents</p> <p>9. Auto reply facility</p> <p>10. News on University Sports/ Other activities</p>
6	University Fee Management and Fee Accounting	<p>1. Complete automation to fees Management process</p> <p>2. Create university fees structures manage reminders to colleges and reports</p> <p>3. Fee collection and submission process and automatic accounting entry in the accounting system</p> <p>4. Exam fee collection management and reporting</p> <p>5. Late fees and fine calculations and management</p> <p>6. Provision of collection of fee in bulk</p> <p>7. Provision for management of fee concessions</p> <p>8. Due fee reports, collected v/s due month on month fee report</p> <p>9. Auto Generation of Fee Receipts and duplicate receipts</p>
7	University Level communication	<p>1. Notifications – University can Create, Manage, Display all kind of notifications within the campus or outside the campus to affiliate colleges,</p>

	and notification management	<p>teachers, students etc</p> <p>2. Automated Notifications -"Email, Mobile based and on-portal Notifications</p> <p>3. System should support sending various system email notifications to learners / students and colleges / teachers via any standard internet email address."</p>
8	University Financial Accounting and Payroll management	<p>1. Management of automated payroll processing including Salary Slips.</p> <p>2. University defined income and deductions heads (graded pay and fix pay structures to be handled).</p> <p>3. Rule based income tax and PF calculations and option for creating reports and formats.</p> <p>4. Development of Financial Accounting module.</p> <p>5. Income tax rule based rebates handling for employees.</p>
9	University Human Resources Management & Establishment	<p>1. Recruitments - Handling employee recruitment process and personnel file management</p> <p>2. Leave and Attendance - Leave management process with leave rules configuration, leave encashment, online leave approval workflow.</p> <p>3. Attendance tracking and management, integration options with Bar code, card based, and biometric based attendance systems</p> <p>4. Employee Performance Management - "Appraisals - Self / Superiors.</p> <p>5. Increments and Incentives handling.</p> <p>6. Resignations / Retirement.</p> <p>7. Employee Training and Development.</p>
10	Grievance/Call Centre	<p>1. online submission of Complaint</p> <p>2. Online Tracking/follow-up of lodged complaints</p> <p>3. IVR – Interactive Voice Response based Call Centre</p>

B.4 DELIVERABLES OF BIDDER

SOFTWARE	
➤	College Affiliation Management & College Portal
➤	Pre-Admission & Merit List
➤	Admission & Academics Management
➤	Student Enrolment Module with Eligibility
➤	Migration Management
➤	Transcripts Management
➤	Course Management
➤	Student Attendance Management
➤	Examination Dispatch Management

<ul style="list-style-type: none"> ➤ Examiner Database Management ➤ Student Activities Management (NCC, NSS, Sports etc.) ➤ Examination Management (Pre-Conduct, Conduct & Post conduct) ➤ Examination Monitoring Management ➤ Student Portal ➤ Convocation Management ➤ University Fee Management and Fee Accounting ➤ University Level communication and notification management ➤ University Financial Accounting and Payroll management ➤ University Human Recourses Management & Establishment
<p>Additional Services:</p> <ul style="list-style-type: none"> ○ Printing of Examination Material: Roll list, center copy, Attendance sheet, TR, Grade sheet ○ OMR Sheet Scanning ○ Mobile App for various stakeholders ○ Grievance/Call Centre

(Minimum Requirements) MANPOWER REQUIRED AT	
State Data Centre	<ul style="list-style-type: none"> ● Project Manager (1) ● DBA (2) ● Network Administrator (2) ● NOC Executive (3) ● Business Analyst (1)
Each University	<ul style="list-style-type: none"> ● Project Coordinator (1) ● MIS Executive (3) ● System/ Network Administrator (1) ● Technical Support Executive (6)
Other Staff	<ul style="list-style-type: none"> ● Project Head (1) ● Technical Head (3) ● Software Developers & Technical Support team (50) ● IT Manager (2) ● Data Entry Operator (35) ● System Analyst (7) ● Software Testing team (30)