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Request for Proposal for Implementation of Web based ERP System

Volume II – Technical and Functional Requirements and Solution Scope

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Chapter-1: Introduction

The objective of this tender document is to solicit ERP proposals from the prospective bidders for providing a web based end-to-end ERP system at IIT Indore.

The objective of this tender document is to solicit ERP proposals from the prospective bidders for providing a web based end-to-end ERP system at IIT Indore.

1.1 Request for Proposal (RFP) Structure

Contents of this RFP have been documented as a set of two volumes explained below.

Volume I: Bidding Instructions and General Terms & Conditions

Volume I of RFP intends to mention all the information that may be required by the potential bidders to understand the evaluation criteria, commercial terms, bid process details, etc. to thereby participate in the bid process for implementation of ERP and Web based ERP-like solutions at IITI.

Volume II: Technical and Functional Requirements, and Solution Scope

Volume II of RFP intends to highlight all the details with respect to functional and technical requirements of the ERP solution along with the necessary scope of work for implementing the solution that IITI deems necessary to share with the potential bidders. This volume has Appendix A which is a separate document.

This document is Volume II.

Chapter-2: IITI Organization Structure and Functions

2.1 Organization Structure

IIT Indore is a premier technical education institute under the aegis of the Ministry of Education (MoE), Government of India. The governing council of the institute comprises the Board of Governors (BoG) that is chaired by an eminent person nominated by the Visitor (the President of India) of the institute. The other members of the BoG are the Director of the institute as ex-officio, one eminent person nominated by the Government from the state of MP, four persons having special knowledge or practical experience in respect of education, engineering or science, to be nominated by the Council and two professors of the institute to be nominated by the Senate. Registrar of the institute is the secretary to the BoG.

Director is the Principal Academic and Executive Officer of the Institute. The Director has the power to incur expenditure in accordance with the procedure as may be laid by the Board/Ministry of Education from time to time. The Deans shall assist the Director in academic and administrative work and maintaining liaison with the institution of higher learning and research. The Registrar shall exercise powers and perform duties as may be assigned to him by the Act or the statutes or as assigned by the Director.

The Senate is the custodian of all academic affairs of the Institute. It is empowered to sanction academic programs and courses, approve their contents and any changes thereof, and oversee their conduct. The Senate comprises of all the Professors of the institute, Heads of Departments and some other invited academic members and distinguished persons from the Industry, Research & Development, Financial Institutions, and any other comparable organizations. The Director is the Chairperson, and the Registrar is the secretary of the Senate.

The key people in the execution of the Institute's activities are the Director who is assisted by Dean Academic Affairs, Dean R&D, Dean Faculty Affairs, Dean Students Affairs, Dean Infrastructure Development, Dean Administration, Dean Alumni and Corporate Relations, Dean International Relations, Heads of Departments and Centers.

IIT Indore has the following supporting sections and offices which take care of the various academic and administrative activities of the institute.

- Academic Section
- Material Management Services Section
- Administrative services Section
- R&D Section
- Finance & Accounts Section
- Stores & Purchase Section
- Internal Audit Section
- Students/Hostels Section
- Infrastructure Development and Maintenance Division (IDM)
- International Relations Office
- Alumni & Corporate Relations Office
- Security Office

More detailed mapping of the organizational structure will be provided during the implementation phase of the ERP project.

2.2 Functional Structure

Academic Section

The Academic Office of the Institute exists to facilitate, initiate and co-ordinate the academic work of the Institute, particularly the teaching and assessment of students. It acts as the repository of grades and academic records of all students, both past and present. It provides administrative support to the Senate, which is the highest academic body of the Institute. The Head of the Academic Section is the Dean Academic Affairs, who is appointed by the Director of the Institute. The Dean is helped by a permanent administrative set-up headed by a Deputy/Assistant Registrar (Academic). The Academic Office closely interacts with the Dean (Students Affairs), who looks after all non-academic issues of students.

Academics

IIT Indore offers a wide variety of courses of study in engineering, pure sciences, design and liberal arts with a primary focus on engineering. The Institute conducts educational programmes leading to the degree of Bachelor of Technology (BTech), Master of Science (MSc), Master of Technology (MTech) and Doctor of Philosophy (PhD). We also offer dual degree programs for students to convert from M Tech to Phd (5 years program).

A brief on legacy Academics Information Management System (AIMS) Portal:
Academic portal <https://academic.iiti.ac.in/> was deployed in-house with a minimal set of engineers in the early years of IIT Indore. Presently it allows for updation and entry of data pertaining to the following major modules: Student management for UG, PG and PhD, course work management (types and number of courses), course registrations (courses, guides etc.) management, Grade management, Feedback management, Academic masters, Registration for degrees (Specific degrees such as minor, etc.), class room and meeting room booking System. Within each of these main modules, there are sub-modules with more specific parameters and requirements.

Any other information on the existing academic activities can also be shared with the bidders on request.

Departments, centers, sections, and incubators

IIT Indore has departments, centers & incubators and offers multi-disciplinary programs

List of departments at IIT Indore are:

- Astronomy, Astrophysics and Space Engineering
- Biosciences and Biomedical Engineering
- Chemistry
- Civil Engineering
- Computer Science and Engineering
- Chemical Engineering
- Electrical Engineering
- Humanities and Social Sciences
- Metallurgy Engineering and Materials Science
- Mathematics
- Mechanical Engineering
- Physics

List of Centres at IIT Indore are

- Health Centre
- Counselling services
- Computer and Information Technology Centre (CITC)
- Central Workshop
- Centre for Advanced Electronics (CAE)
- Center for Electric Vehicle and Intelligent Transport Systems (CEVITS)
- Center for Indian Scientific Knowledge Systems
- Centre for Entrepreneurship Education and Development
- Center of Futuristic Defense and Space Technology
- Center for Indian Scientific Knowledge Systems
- Centre for Rural Development and Technology (CRDT)
- DST-FIST Center of Excellence in Gear Engineering
- Sophisticated Instrumentation Centre (SIC)
- Training and placements

Chapter-3: Proposed ERP System

IITI being an institute of higher education and an institute of national importance necessitates standardized process flows, real-time reporting, project monitoring and status updates, project planning and execution, maintaining student life cycle, stores and purchases, inventory management, finance and accounting management, HR/Admin, funds management, etc. which IITI would like to implement as part of a web based end-to-end ERP system to meet its requirements.

3.1 Objectives and Benefits

IITI envisages the following benefits from the proposed ERP system.

- Common integrated system platform across different functions and processes of IITI
- Process standardization across the institute to bring-in unified approach.
- Monitor research activities and funds utilization.
- Monitoring and governance of the procurement processes
- Mapping of assets and their life cycles
- Analysis of budget and actual data
- A scalable ERP solution that accommodates the expected growth plan
- Data integrity across various IITI functions like departments, centers, administrative units, finance, and accounts, etc.
- Facilitate paperless working and provide decision support mechanism.
- Automate management controls and approvals to reduce cycle time.
- Seamless integration of student information across the institute
- Real-time reporting on the performance of the individual operating departments and a streamlined Management Information System.

3.2 Strategic Considerations

The strategic considerations for the proposed ERP system at IITI are as follows:

Future expansion – The ERP system will be used for automating all the functions of IITI and is required to meet future expansions in terms of programs, departments, centers, scale of student intake capacity, etc.

Integration – To utilize the current and future investments in the stand-alone IT applications, IITI intends to integrate them with the proposed ERP solution. To ensure this, one of the key elements of the solution strategy is to ensure having solutions with open standards for integration of different third party / legacy / in-house developed applications / solutions.

Proven Solution – Processes of IITI are moderately unique in the areas of finance, human resource, payroll, project management, academics, etc. as compared to general institute practices, but similar in some areas to the ones in public sector / government sectors in India. Keeping this uniqueness and maturity of the processes in mind, IITI will use ERP solutions which have been implemented successfully in the leading higher education institutes in India.

3.3 Implementation Methodology

The methodology to be used by the bidder to implement the ERP solution will have different work elements and activities. All these activities and work elements should coherently focus on achieving the following key results.

I. Quality of the solution deployed.
II. User satisfaction while deploying and usage.
III. Successful implementation in terms of completeness and timely accomplishment of the outcome

While there are different techniques and tools available as a part of the methodology, the following are expected to be part of the implementation methodology to be adopted by the bidder.

- Workshops/meetings with different stakeholders for capturing detailed functional requirements, creating awareness of best practices, communicating the changes, building consensus on process (aka workflow) design, for signing off the deliverables, etc. These need to be organized at different intervals and in different places throughout the duration of the project as demanded by the context.
- Stakeholder consultations other than workshops, with those stakeholders who will be identified by IITI, for the purpose of critical inputs, review, suggestions, process description, etc.
- Review sessions with different stakeholders for signing off the deliverables, walking through the deliverables for facilitating quick understanding, etc.
- Internal review mechanisms of bidder for ensuring the quality of the solution and the deliverables.
- An integrated bug tracking module for the end users to submit any bugs found while using the ERP system.
- Adoption of the review comments - effective mechanisms to adopt the changes suggested and fix the bugs reported.
- Documentation of proceedings – recording the developments, discussions, deliverables, using standard methodology and native tools available with the ERP solution.
- Work standards / practices for documentation, configuration, testing, data migration, etc.
- Training different stakeholders on a continuous basis and providing Help manuals for the end users.

Chapter-4: Scope of Work

Following are the key technical and functional requirements for the proposed ERP system of IITI. For details on each functional module of IITI, refer to **ANNEXURE A: BROAD FUNCTIONAL REQUIREMENTS SPECIFICATIONS (FRS) for the proposed ERP system (A SEPARATE DOCUMENT).**

4.1 General Scope

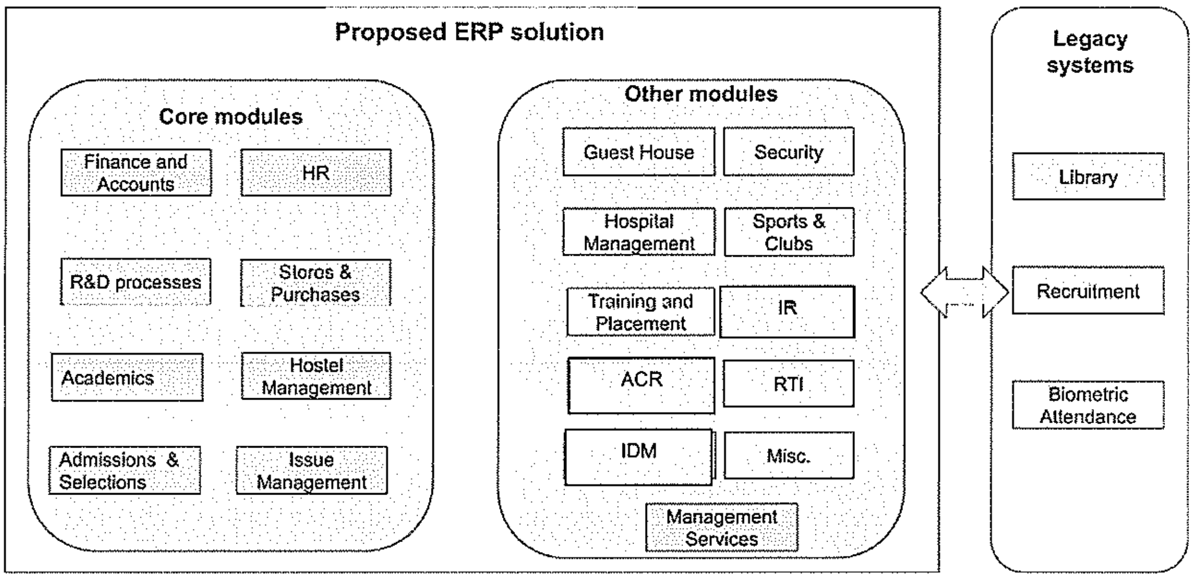
The following are the general features required in the proposed web based end-to-end ERP solutionof IIT Indore.

- Web-based ERP application which may either be hosted in the in-house datacenter of IITI or any other location with back up at IITI.
- Secure web-based access using https.
- Supporting biometric, internet banking, and smart/credit card inputs.
- Interfacing with third-party payment gateways.
- Capability for continuous improvement and upgradation.
- Configurability through web-interface and client interface.
- Provision for decision support mechanism.
- Facilitate paperless working.
- Workflow based process approval and archival mechanism.
- Digital signatures for selected high-level functionaries.
- Comprehensive data and application security features.
- Adequate security provisions for preventing tampering of the software as well as data.
- Archival of information and data.
- Audit logs of user sessions.
- Provision to define and view rules and regulations of the Institute as per applicable GoI / IITI norms.
- Provision for role-based access rights.
- Provision of interactive validations of data entries.
- Provision for data item-based access rights.
- Provision for reports generation as per requirements.

4.2 Functional Scope

IITI has decided to go in for a phased approach to implement the ERP solution across the functional areas listed below. IITI would like the implementing agency to first automate the core back bone processes and functions as listed under Core Modules in Figure 1. The solution will then be extended to include Other Modules in Figure 1 in a phased manner as per the project schedule given in this RFP. The integration, data migration and interfacing needs between existing/legacy applications of IITI, 3rd party applications and the proposed ERP system needs to be considered by the bidder as part of their proposed approach and methodology for ERP enablement.

Figure 1: Indicative list of the core and other modules in the proposed ERP solution.



4.3 Number of Users

Number of regular users (i.e., students, faculty, and staff) accessing the ERP portal: 4500 users in 2023. It will be approximately 8000 users by 2025. The proposed system should scale well up to 15000 regular users without requiring any architectural changes. Further, the system should handle 50000 one-time users (Master and PhD applicants) submitting online applicationsat the time of admissions in different sessions/semesters.

4.4 Technical Requirements and Scope

The non-functional (technical) requirements for the proposed ERP solution are listed below.

4.4.1 Modular Design

The proposed ERP solution is expected to be based on a software architecture with the following.

A. The proposed solution should be modular in nature. The coupling between different modules should be loose and it should be possible to deploy different modules in different VMs/containers/machines which may be hosted in different physical servers or even be on different networks.

B. Modules should use standard data-exchange protocols such as REST API to communicate between two modules. In addition, various information for which the corresponding module is responsible should be exposed via **authenticated** APIs. These APIs should facilitate integration of new modules and web apps which may consume information from multiple existing modules.
C. Every module should be designed in a multi-tiered approach where the rendering of data, application logic, and the code that accesses the database are decoupled from each other. For example, 3-tier architecture and Model-View-Controller (MVC) based architecture follows this design principle.
D. Modules should communicate using standard data-exchange formats such as JSON or XML over a **secure** communication protocol. There should be an option to export various information catered by the module in such standard data-exchange formats.
E. Modules should be scalable. Modules that cater to academic registration, recruitment or admission are likely to encounter heavy traffic in bursts during certain duration. The solution should ensure that the modules have auto scaling feature to cater to surge in traffic while still ensuring fast response times. One such technology that enables such autoscaling is the Kubernetes cluster. Similar free/open-source technologies may be used to provide scalability.

4.4.2 Authentication, Authorization and Access Control

A. The proposed solution should have Single Sign On (SSO) facility, with a provision forTwo Factor Authentication (2FA), so that the user need not separately login to every module independently. The solution should use Free/Open-Source frameworks (e.g., OAuth) to provide SSO functionality.
B. Any communication between the user and the central authentication server must be overa secure communication channel.
C. The proposed solution should allow various modes of authentication such as password-based authentication, certificate/key based authentication, etc.
D. A role-based access control (RBAC) must be set up with the right roles and responsibilities identified and outlined.
E. The proposed solution should follow Unix philosophy for access control. Only a minimal set of privileges should be given to a minimal set of information resources/data to a given user to enable the user to perform the task required as per his/her role.
F. Audit logs must be available for all authentication, authorization and resource access requests. For example, metadata like date, time, IP address, user name, how accessed (browser/app), what data was accessed, what data was modified (if any) etc. information should be captured in the audit logs. This is to help tracing against user ID or activity or field level.

4.4.3 Backup and Disaster recovery

A. The bidder must provide a detailed backup strategy plan, Disaster recovery plan, storage recovery plan that ensure minimal downtime of the ERP system while keeping the cost to be minimal.
B. The bidder has to make provision of backup at DR site which may either be at IITI or any

other geographical location.

C. The proposed solution must ensure a high degree of automation of incremental backup, full backup, data recovery, health monitoring of various services, etc. All necessary scripts, code, triggers, training and documentation must be provided with respect to health monitoring, backup and disaster recovery.

D. High Availability

The ERP system should be deployed with high availability to ensure zero to negligible downtime in the event of failure of the underlying VM/server.

4.4.4 Frontend Design

A. The user interface (UI) must follow principles of responsive design. The UI for all modules must ensure that the rendering of any pages/forms are aesthetically pleasing as well as should ensure better user experience by accommodating flexible designs that can cater to devices of all form factors (laptop/desktop/tablet/mobile). For example, Bootstrap is a frontend design framework that enables responsive design. Similar technology may be used to ensure pleasant user experience across all the user facing interfaces.

B. All user interfaces must ensure compatibility across most of the popular browsers (Google Chrome/Firefox/Opera/Safari/Chromium/Edge/Internet Explorer) for at the least last 3 of their respective versions.

C. Input data validation/sanitization should be done both at the front end as well as at the back end to ensure security and safety.

D. User interface design along with the back end sanitization should ensure that attacks such as SQL injection, cross site scripting, buffer overflow and any other similar attacks are ineffective against the proposed ERP solution.

4.4.5 General Application/Solution Requirements

A. The solution should support e-mail and Active Directory/LDAP integration.

B. The solution should support the upload and download of multiple types of documents into the Document Management System that include office documents, image files and engineering drawings.

C. Archiving - system should provide a data archival utility to search the archived data to create reports.

D. All functionalities like data entry screens, various reports, batch processing, integration, etc. should use a common unified application platform suite to provide ease of management to avoid compatibility issues.

4.4.6 System Administration and Maintenance

Bidders are required to undertake the following:

A. Formulation of all policies and procedures related to system administration, database management, applications, archives, network management and security, back up, etc.

B. Prepare requisite system landscape and procedures for smoothly implementing the ERP system.

C. Bidder shall assist the IITI team to perform all authorization-related activities (activity group, authorizations, profiles, etc.) till the ERP system stabilizes.

D. Prepare a detailed system administration manual, data administration manual, operational manual and user manual, which shall be used by IITI ERP team to run the ERP system. This shall also include how the various parameters shall be monitored / tuned in a live system.
E. Finalize the archival policies for all the functional areas. All necessary configurations shall be done and tested.
F. Prepare requisite system configuration for disaster recovery management and Fail Over system plan.
G. Round the clock support for troubleshooting in functional and technical areas.

4.4.7 Centralized Database for the ERP System

The backend database will be a centralized database stored at a single location with access and a complete view of the data pertaining to IITI. The database character set should be *unicode* to support several languages.

The database must satisfy the following standard properties that are required of a database:

- **High Availability**: We expect a high availability setup with minimal downtime with ideally real-time replication and a standby database to switch over to in case of faults. The database must work in clustering environments (e.g., on cloud/VMs) by allowing several database instances to run and access the central database to ensure high availability and also scalability.

- **Latent Capacity:** This database must have the ability to deal with "unexpected peaks in usage workloads" (either long-running batch jobs or concurrent requests) independent of more resources.
- **Performance**: Considering a given system load, we require very low query response times.
- **Scalability:** The capacity to handle a larger range of user requests should be increased (or decreased) without any changes to the original architecture.
- **Serviceability**: The database should come with user-friendly web interfaces to monitor the health of the database and repair it. The system must allow for planned downtimes for critical updates, maintenance, etc. via interfaces.
- **Security:** The database should allow easy setup of authorization and authentication schemes by administrators that are not necessarily database administrators.

4.4.7.1 Audit Logs

- The database must allow for *fine-grained audit control* i.e., it should allow auditing the most granular level data access and user actions.
- We should be able to create security policies based on access to or changes in a column. E.g., we must be able to audit a particular table column to find out *when* and *who* tried to access it or update it during a specified period.
- Furthermore, the database should create alerts that are triggered when a security policy is violated and write this data to a separate audit table and audit log file.
- Using the data collected in these audit logs, a report must be generated which gathers statistics about the tables being updated, how many logical I/O operations are performed, or how many concurrent users connect at peak times and what tables, or database modules are the most accessed in the system.
- Must have the ability to send email notifications when noticing suspicious activity patterns like unauthorized users accessing database objects that require higher privileges.
- Any sort of data being deleted should also be recorded in a separate audit table along with user details and timestamps to keep track of old data.

4.4.7.2 Role based authentication.

- The ERP solution should have the ability to specify new database roles (via web interfaces) intended to perform a particular set of administrative tasks. A superuser should be able to review all the roles and create/modify/delete roles and have the ability to grant/revoke authorization to roles in a separate web interface.
- Authorizations to access and perform tasks must be given to these roles and not directly to user accounts.
- A user-friendly web interface should display all the roles and authorizations associated with them with the additional ability to generate reports.

4.4.7.3 Data migration from legacy systems

- The bidder must provide a robust data migration strategy using the ETL (Extraction-Transformation-Load) paradigm or such equivalent ones.
- Require an easy-to-use data migration tool that allows migration from legacy backends (e.g., Academic portal of IITI) to the new ERP backend.
- Must allow loading data from flat files.
- The migration will come with an integrated unit testing and reporting tool to show the test results.
- It must have the ability to set up checkpoints and possess recovery options for each stage in the data migration.
- There should be an option to do secure transfers for sensitive data (such as financial records).
- Post migration, we must have the ability to perform data verification, followed by data cleansing, and check that the data is available, accessible with the right authorizations in place, complete, and in the correct format. This should be automated with either off-the-shelf tools or by scripts written by the bidder.

4.4.7.4 Integration with existing and legacy systems

- The bidder must provide a comprehensive data integration platform which covers a wide spectrum of data integration requirements: from high-volume, high-performance batch loads to event-driven, trickle-feed integration processes along with SOA-enabled data services.
- Additionally, the system should also support real-time integration.
- The integration toolkit should support all platforms, hardware, and OSs with the sametoolkit.
- Should be able to interface with other existing systems via standard data interchange file formats like JSON, XML, SOAP, etc.
- The integration toolkit must automatically detect faulty data and repair it, thus not allow its propagation to the target systems.
- As much as possible, the integration tool should allow specification of new data integration workflows via GUIs.

4.5 Scope of Services for Implementing Agency

The scope of services for the successful bidder (aka Implementing Agency) is as follows.

I. Procurement and Supply of software product/s licenses and associated solution components. The bidder must use free/open source components available to the maximum extent possible in the solution.
II. Procurement and supply of database

III. Hardware / Infrastructure estimation and sizing and assistance in procurement
IV. ERP Implementation Services till Go-Live of Stable Version of ERP system
  a. Project Preparation
  b. Business Design / Blueprint
  c. Configuration / Customization / Development
  d. Testing & Go-Live of Beta Version of ERP system
  e. Data Migration
  f. Training
  g. Documentation
  h. Go-Live of Stable Version of ERP system
V. Warranty Support
VI. Application Maintenance & Enhancement Services (AMES) Support

4.5.1 Procurement and Supply of software product/s licenses and associated solution components

IITI desires to implement an ERP system that will cater to various classes of users like transactional, management users, self service users. The offered ERP solution shall meet all requirements as specified in the RFP. Bidder will procure and supply any related software / 3rd party applications / accessories required to make the offered ERP solution complete.

Bidder will take responsibility for the following.

i. Procure and supply perpetual licenses for transaction, technical and system administration for the offered ERP system.
ii. Supply tools, accessories and documentation. Tools and accessories shall be part of the offered solution.
iii. ERP documentation to be supplied along with licenses and associated software solutions and shall include but not limited to the following.
  a. Technical manuals
  b. Installation guides
  c. User manuals
  d. System administrator manuals
  e. Toolkit guides
  f. Troubleshooting guides

Please note that all the licenses would be in the name of "Indian Institute of Technology

Indore" and perpetual in nature.

4.5.2 Procurement and Supply of Database and Operating Systems

Bidder shall take responsibility for the following:

i. Tools and accessories shall be part of the offered database and server operating system.

ii. Product documentation to be supplied along with licenses of database and server operating system and shall include but not limited to the following.

   a. Technical manuals
   b. Installation guides
   c. User manuals
   d. System administrator manuals
   e. Toolkit guides
   f. Troubleshooting guides

Please note that all the licenses for database and operating systems (if applicable) would be in the name of "Indian Institute of Technology Indore".

4.5.3 Hardware / Infrastructure Estimation and Sizing / Installation

The bidder shall identify and provide "Bill of material (BOM)" for IT hardware/infrastructure and sizing requirements with specifications. Bidder shall identify server requirements and specifications based on IITI's requirement for performance, usage and scalability. IT infrastructure components should preferably be hosted exclusively at IITI Campus (on-premise). The bidder also needs to suggest staggered requirements of hardware / network components as per the implementation plan with required procurement lead time. Procurement of all the components mentioned in BOM shall be carried out by the IITI and made available to the implementing agency for installation and maintenance during the project term.

4.5.4 ERP Implementation Services & Support Services.

4.5.4.1 Project Preparation

Detailed project charter including the detailed project plan, indicating all activities with resources required, their roles and responsibilities and time schedule of deliverables should be prepared at the start of the project including coordination of project implementation plan, approved by the IITI ERP team.

The project charter should also contain brief project description, approach and methodology, milestones, project organization, project risks and mitigation plans, dependencies, etc.

The project charter should include a detailed program for installing and implementing the ERP solution covered under this RFP. The program shall be in the form of a bar chart/master network identifying key phases in various stages of the project.

4.5.4.2 Business Design

The bidder shall perform a study of existing processes at IITI and prepare a Business Blueprint ("As-is", "To-be", and "Gaps") report with required process definition and flow diagrams, process enhancements and gap fitment analysis to map all functional requirements of IITI in the ERP solution. The bidder is expected to conduct workshops, give detailed presentations on the Blueprint, which will include the gap analysis, way forward to fill the gap and specific recommendations for adoption of new improved business processes by IITI.

Simplification and Standardization of Processes: Processes of all IITI functions / areas (Departments, Centers, Sections, Offices, etc.) need to be studied and simplified into logical steps at first. All processes need to be depicted into simple flow diagrams with clear linkages. This will help in reviewing some of the old manual practices in view of the integrated system scenario of the future. Bidder also needs to explore the standardization of processes across all IITI functions/areas.

IITI will constitute a project governance structure with adequate representation from all the stakeholders to review the recommendations of the bidder and accord necessary approval for the Business Design report and the new improved business processes to be adopted.

Detailed design requirements: A detailed description of the data flows between various modules and assumptions surrounding these data flows must be provided. This should include detailed screen mockups of the module front-end interfaces along with messaging and data transfer between the interfaces and their respective interactions to the backend databases. Any data sharing between frontends done via backends should clearly be mentioned in this detailed design document. There should be a functional overview of the data and data type specifications mapping between the frontend and backend connected to each module along with any intermediate data flow specifications (e.g. shared structures, temporary storages, views, etc.). All data migrations and integration strategies should be laid out in detail specifying which database tables and fields are being manipulated.

4.5.4.3 Configuration / Customization / Development

The bidder shall be responsible for installation of ERP software, database, operating systems tools, and any other component (together referred as ERP solution) required for making the ERP solution successfully operational as per the requirements in RFP. Based on the approved business blueprint and detailed design document, the bidder will undertake the configuration and customization of their ERP software or develop the proposed ERP solution.

4.5.4.4 Testing

The bidder shall provide details of tests being carried out during the implementation (e.g. including conference room pilots, unit tests, system integration tests, stress tests and final user acceptance test). **Details of the testing strategy and approach should be provided in the response.** The bidder is responsible to identify and inform IITI regarding testing requirements and impacts. The bidder shall work in a manner to satisfy all the testing requirements adhereto the testing strategy outlined. The bidder must ensure deployment of necessary resources and tools during the testing phases The bidder shall take remedial action based on the outcome of the tests.

The bidder shall create the test strategy document that defines the requirements and goals of ERP configuration, determine the tools and methods used to check that the system responds correctly, determine how and when the test will be performed and recommend how the approval process should occur. The test strategy document shall guide the project team through the implementation to ensure that planning and conducting testing activities in the various phases of ERP implementation are proper. Various testing phases are as follows.

<u>Base Line Testing</u>

The purpose of baseline testing activities is to plan and conduct testing to validate the baseline configuration. Baseline testing shall ensure that Baseline configuration is valid and shall support the business processes defined in the Business blueprint report.

Baseline testing shall include

a) Unit testing: Testing of transactions and functions within modules and
b) Scenario testing: Testing of all business processes and scenarios

<u>Development Testing</u>

After development and/or customization / configuration of the ERP solution, the bidder shall conduct tests to demonstrate the readiness of the system which meets all the requirement specifications (functional and nonfunctional) as brought out in this RFP. This shall be in accordance with the procedures detailed in the approved business blueprint report.

On the basis of these tests, a report would be submitted by the bidder for review and approval by IITI. The test results and response times should be demonstrated by the bidder during all the testing phases (system preparation, integration and stress and load testing) at IITI location in an environment / infrastructure as mutually agreed upon. The development testing shall cover testing of

- Unit testing of customer-specific development
- Conversions
- Enhancements (User-exits / programming interface and other code enhancements)
- Reports

Development should not only be tested by the developer but also by the process owner to make sure that the test results (output data) are correct and reflect the business processes defined in the business blueprint report. After unit testing is completed, all customer-specific developments, programs and forms etc. shall be included in the Final Integration Test.

Integration and System Testing

The purpose of the integration test is to execute the integrated components, including simulation of live operations, and analyze the results that are important for the functional verification of the production system.

Integration testing shall be accomplished through the execution of predefined business flows, or scenarios, that emulate how the system will run the processes of IITI. These business flows, using migrated data from the existing systems, shall be performed in a multifaceted computing environment comprising ERP products, third-party software, system interfaces and various hardware and software components. The integration tests shall build the necessary level of confidence that the solution is complete and will perform the business processes of IITI.

Integration testing shall focus on cross-functional integration points, as well as end-to-end business processes. The final integration test plan shall start with the testing of the cross-functional integration points (touch points) and end with the end-to-end testing of critical business processes identified within the business blueprint report.

Integration testing shall be done in two iterations.

- The first iteration (Integration test) shall concentrate on testing all important business processes inside the ERP system. It will be done by the bidder's functional consultants. Unit testing shall be carried out for customer specific developments like user-exits / programming interface and transactions. Authorizations and user roles would also be tested in the Integration Test.

- System Testing, as a second iteration, shall focus on the most important cross-enterprise scenarios with touch points to external components, including testing of conversions, interfaces, reports, and the necessary authorizations. It will be conducted by IITI users with the assistance of the core team.

Integration and system tests need to be an evolutionary process that is driven from the previous testing efforts. The test cases and scenarios that were used for baseline need to be reviewed collectively by IITI and bidder and enhanced for the integrated and system tests. These selected cases will be combined to represent a business process flow such as a project management cycle. Problems encountered during these activities shall also need to be tested under an integrated environment.

Load and Stress Testing

Once the system integration testing has been conducted successfully, load, scalability and stress testing would be conducted prior to release of beta version Go-Live at the institute level. The bidder should use suitable simulation tools in accordance with the agreed test procedures keeping in view IITI's projected future load of transactional users as mutually agreed with IITI. After successful testing and its approval by IITI, the solution would then be considered as ready for beta version Go-Live.

User Acceptance Testing

The bidder will develop user acceptance test (UAT) procedures for IITI approval. The purpose of this acceptance is to ensure conformance to the required process operations, response times, and integrity of the software after installation, and to eliminate any operational bugs. Acceptance must commence for the successful completion of beta testing Go-Live period for the ERP system.

4.5.4.5 Data Migration from legacy systems & Integration of legacy systems

The key requirements for data migration and integration are as follows.

A. Identify and assess data to be migrated from the legacy applications, spreadsheets maintained by various administrative sections, mapping of such extracted data and uploading of data into the proposed ERP solutions including consistency checks.
B. The bidder shall formulate the "Data Migration Strategy Document" which will also include quality assurance mechanism. This will be reviewed and signed off by IITI prior to commencement of data migration.
C. Specify forms / formats / templates / tools for data inputs and upload.
D. Data migrated will be rationalized, transformed, and reconciled.
E. IITI and the bidder shall mutually conduct the acceptance testing and verify the completeness and accuracy of the data migrated from the legacy systems to the proposed solution and the integration of legacy systems to the proposed solution.

Data migration will include identification of data migration requirements, collection and migration of user data, master data, open transactions, documents, and data from the legacy systems i.e., Academic portal of IITI and Tally system used for accounting purposes. Further, the bidder has to integrate legacy systems i.e., faculty and staff recruitment portals, library management system and facial biometric attendance system of staff and students with the developed ERP system as per the business requirements of IITI.

4.5.4.6 Training & Change Management

The bidder is required to train all staff identified as ERP core users to enable them to effectively operate and perform the relevant services using the software. The training content will have to be relevant to the target trainees depending upon the role played by them at IITI. The bidder has to provide following trainings:

a. **Initial ERP Product Training:** Initial training shall be provided to the ERP core team members. The training should provide a comprehensive coverage of the ERP solution and its functionalities. The training shall also highlight the unique requirement of the proposed ERP solution.
b. **ERP Core Functional User Training**: Core team user training shall provide detailed training to ERP core team members to enable them to handle future maintenance of the system and address functional queries, if any.
c. **ERP End User Training**: Functional training shall be provided to all ERP users. This training shall focus on user specific requirements and address the daily working and reporting requirements in the ERP solution. A refresher training of all the functions needs to be provided to update the knowledge of ERP solution users. The refresher course needs to be user

specific.

d. **Technical Training:** This training shall be given to the technical (IITI ERP) team responsible for carrying out technical activities related to the ERP system programming, maintenance / administration of database and operating system, backups, etc.

The bidder shall mutually discuss and finalize the training plan to impart training to different users at IITI as per their roles and responsibilities. The proposed training schedules, duration, content of training, etc. will be based on the final sign-off from IITI.

The bidder will suggest to IITI issues anticipated in the Change Management process and proposed solutions to overcome the same. The bidder will conduct the change management programs for various levels of personnel covering the entire institute.

4.5.4.7 Documentation

The bidder will provide detailed final system documentation for the reference of IITI. The bidder shall provide ongoing relevant product information for reference purposes and facilitate self-education for IITI personnel.

Documents to be supplied by the bidder shall include following (but not limited).

- Configuration document consisting of system setting and parameters for each functional module.
- Standard operational procedure (SOP) manuals
- Documents related to data structures / tables.
- On-line help manual
- Technical manuals
- Installation guides
- System administration manuals
- Toolkit guides and troubleshooting guides.
- User manuals include system instructions and use cases, how to run a program to perform specific tasks in the system with sample reports, screen formats, etc.
- Program flow and descriptions
- Any other documentation required for usage of implemented solution.

All documents mentioned above or any other standard documentation for the product to be submitted to IITI as applicable throughout the lifecycle of the project.

4.5.4.8 Go-Live of Stable Version

Once "Certificate of system acceptance" is provided to the bidder by IITI, it will be considered as the Go-Live date for the stable version of ERP solution and warranty period kicks in.

4.5.4.9 Support in Warranty Period and AMES Period

The bidder shall provide support to IITI for a period of four years (one year deployment and warranty and four years of AMES) post conclusion of beta testing Go-Live of the ERP system. The bidder shall continue deploying the adequate number of technically qualified personnel on-site till the end of **five** years for system maintenance and enhancement, continual change management and incremental inclusion of **new modules/features** as deemed required by IITI. During the supportperiod, the bidder shall also help IITI users to correct any errors encountered / committed whileexecuting transactions, generating reports, hand holding for quarter closures or month closures. The bidder shall also update the user manuals and configuration manuals, if required.

The application functional support services contemplated herein shall be provided for ERP solutions implemented by the bidder. The bidder shall render on-site maintenance and support services to IITI including back-up and restoring data services, periodic clean-up and archival.

The scope of the services is as below:

Enhancements and bug fixes. The bidder shall incorporate technological changes and provide enhancements as per the requests made by IITI. The bidder shall also perform minor changes, bug fixes, performance fine tuning and optimization, error resolutions and minor enhancements that are incidental to proper and complete working of the application.

Routine functional changes. The bidder shall be responsible for user and access management, creating new report formats, and configuration of reports. The bidder shall provide user support in case of technical difficulties while using the software, answering procedural questions, providing recovery and backup information, and any other requirement that may be incidental/ancillary to the complete usage of the application. The bidder shall perform user ID and group management services. The bidder shall maintain access controls to protect and limit access to the authorized end users of the IITI. The services shall include administrative support for user registration, creating and maintaining user profiles, granting user access and authorization, providing ongoinguser password support, etc.

Hardware Maintenance Activities The hardware and other IT infrastructure shall be procured by IITI, but the bidder shall manage hardware troubleshooting, maintenance, and upkeep. Repairs would be covered under AMC with the hardware vendors. However, the bidder will have to coordinate with hardware vendor to ensure timely replacements and/or repairs Upgrades, hot fixes, patches to operating system, web server, application server, database server, and antivirus software during the project term. During the warranty and AMES period, the Institute may require enhancements to the implemented modules and the bidder shall develop and deploy the same.

Chapter-5 Project Management

Other than the management of resources / deployment of experts and management of timelines as per this RFP, the project management by the implementing agency will focus on the work plan containing a detailed set of phases, work packages, activities, and tasks.

Use of project management tool - The Implementation Agency should use a project management tool to record theentire activities of the project including but not limited to:

i. The design documents with version control review comments
ii. The minutes of meetings
iii. System documentation
iv. Issue lists, resolutions
v. Training materials
vi. Management reporting
vii. Issue management
viii. Scope management
ix. Risk management
x. Work plan for ERP solution implementation

The resource plan containing the resources assigned to the ERP solution implementation should display the planned and actual number of workdays per month, as well as the variance between the two.

The bidder has to propose a detailed work plan to be created for the implementation of ERP solution at IITI. Status reports shall be prepared monthly to facilitate the timely implementation of the project. These shall be discussed in fortnightly status meetings to ascertain the progress of the project team.

Detailed work plans shall be created for all milestones based on a consistent approach to implementing and tracking their progress against predetermined project milestones. The implementation shall follow a consistent approach, inclusive of a comprehensive project management approach. Project status shall be communicated on a fortnightly basis, based upon mutually agreed standards. The IA is expected to present in detail the approach to the following project management parameters but not limited to:

Road Map

The IA shall provide a complete road map for implementation of the project by component and module wise. The IA may also suggest changes to the schedule with justification wherever required. However, IITI shall reserve the right to accept changes in the Project Plan suggested by the IA.

Resource Plan

The resource plan will be prepared by the IA based on the assessment of the skills required during different phases of the project. The IA is required to deploy sufficient staff strengths for the project so as to complete allthe activities within the timelines expected by IITI as per this RFP. Although the IA is free to work out its own resource loading and the skill deployment plan, IITI will use this to judge IA's planning to ensure timely completion of the project or not. IITI will have the right to ask for changing the resource plan during the project execution stage,if it finds that the project is either understaffed or overstaffed with inadequate skills (to ensure that inadequate skills are not substituted by more people).

Management Reporting

A management reporting structure has to be proposed by the IA and all deliverables associated with the project shall be categorized and maintained in a system environment (server) so that they are accessible to all the members of the project team. This structure shall assist in facilitating many of the process teams' daily activities as well as project and subproject level communications and knowledge coordination activities.

Project Related Issue Management

An issue is a formally identified matter that may hinder progress on a project or program and about which no agreement has yet been reached. Those items that require documentation, formal investigation and approval should be managed as issues and this issue management methodology has to be proposed by the IA.

Scope Management

The scope of the project will be managed through a formal scope change management process. Project management is essential to ensure that changes to the scope of the project do not adversely affect the project objectives. Change management documentation of project scope and approval procedures provide a visible decision-making process for the project and provide a clear audit trail of scope changes and the corresponding cost benefit appraisal and has to be proposed by the IA in the Project Management Methodology.

Risk Management

An ERP implementation project, like other projects, has some risks associated with it. Identifying and managing the risks is very important to the critical success of the project. During the detailed scoping exercise, the risks shall be identified and a mechanism to manage such risks shall be defined by the IA. Risk management is a continuous iterative process and shall be established when the project begins and continuously performed until the project ends. Risks shall be defined at the project level. It will be the responsibility of IITI and the IA Project Management Team to address the project risks from milestone-to-milestone and make sure the respective responsibilities are managed.

5.1 Proposed Project Period

The timeline for the implementation including beta testing is 6 months. In addition, there is a 6-month warranty period and a 5-year AMES period. The IA is expected to submit their project plans and milestones as per this timeline.

5.2 Project Deliverables

The IA shall submit a schedule for the below mentioned milestones and deliverables (but not limited to) that would be delivered during the project plan. The IA shall be bound with the proposed and finalized (after discussion with IITI) project plan and timelines for submission of deliverables.

i. The table gives a set of high-level activities and corresponding deliverables which will be in project scope.

ii. The IA should use this list only as a guideline in terms of expected deliverables. The IA is required to furnish detailed information regarding each deliverable of every step of activities proposed during and after the implementation of the project.

Following is the list of key activities and deliverables (but not limited to) for the project phases as a part of ERP implementation at IITI by the Implementing Agency.

Activities	Deliverables
1. Project Preparation	• Project Charter • Project Plan and Team
2. Detailed Design / Blueprint	• Detailed Architecture of ERP system • Detailed Project Plan for Blueprint • As-Is report • To-Be report • GAP assessment report • Change management workshop for new processes • Detailed design document of ERP system
3. Hardware / IT Infrastructure Estimation and sizing	• Detailed BOM with technical specifications and services required with estimated expenditure • DR plan document, Backup strategy document • Storage strategy document
4. Configuration / Customization / Development of Core and Other Modules as per RFP	• Configuration documents for all processes and modules • Customization-design, development and technical documents • Roles and Authorization Matrix

5. CRP Demos and Testing of ERP modules	• Conference Room Pilot (CRP) Demos of Core and other modules • Testing Strategy document -Testing Plan, Test data and results • Load testing report • System acceptance testing report • Baseline testing report • Development testing report • Integration testing report • Beta testing at the institute level and its report • Issue Logs for all testing done
6. Data Migration & Integration with legacy systems	• Data collection templates • Data migration strategy report • Data migration tools and conversions • Data migration and sanity check • Integration of legacy systems with the ERP system
7. Training	• Training Plan with schedules and content • User Plan • Delivery of User Training as per the matrix
8. Go-live of Stable version of ERP system	• User acceptance test (UAT) at the end of beta testing and commissioning of stable version Go-live at the institute level
9. Post Go-live warranty support	• Go-live warranty support till the end of 5th year
10. AMES support	• AMES support for four years (After post Go-live warranty support)

Deliverables Acceptance Criteria

The acceptance criteria shall be specified for all the project phases proposed by the IA. A list of standard deliverables (indicative) for each phase is listed above. The formal acceptance of the phase wise deliverables by IITI constitutes completion of the phase and approval to launch the next phase.

5.3 Governance Structure and Project Team Requirements

IA Project Team during development of the ERP solution

The IA shall deploy a project team with the following profiles that will be involved in the development phase of the project. The minimum expected experience and other required details of the personnel are mentioned below. The supporting documents need to be furnished as per enclosed Annexures. IITI reserves rights to interview and approve / reject the project team size and its member(s) proposed for implementation from time to time.

Project Manager: Minimum twelve years of experience, including ERP Project Management experience of minimum two Projects and implementation experience in minimum three ERP implementation lifecycles which includes at least one implementation experience in a Higher Education Institute in India. Excellent client management, communications, and leadership skills.

Functional Integration Manager or Integration Lead: Minimum ten years of experience, including ERP Project Implementation experience of minimum two projects which includes at least one implementation experience in a Higher Education Institute in India, should understand different modules of ERP system and effect of change in parameters in one module how the same will affect the system. He / she should be in charge of all the integration issues during implementation.

Technical Leads: Minimum eight years of experience in the technical domain including Technical Lead experience of minimum two ERP implementation projects, implementation experience of minimum three ERP implementation cycle experience.

Functional Consultants: Minimum five years of professional experience in handling some of the Core Modules of the proposed ERP system of IITI.

Application/ERP Developers: Minimum four years of experience in the development of ERP modules.

Application/ERP Testers: Minimum two years of experience in ERP implementation projects as testers/developers.

Technical Consultants: Minimum five years of professional experience including two years of experience in ERP technical domain including minimum two ERP implementation lifecycle experience on different modules, implementing interfaces to legacy applications, report customization, system architecting and Database management, etc.

IT Infrastructure Lead: Should have prior experience in server sizing and planning for disaster recovery for ERP systems.

IA/Bidder Project Team during Warranty Period

During the warranty period, the IA should deploy adequate technical personnel to carry out various activities as listed out in Chapter 4.5.4.9.

IA/Bidder Project Team during AMES Period

During the AMES phase, the IA should deploy at least one technical lead, two developers and one software tester to carry out various activities as listed in Chapter 4.5.4.9. The IA/bidder should provide the monthly billing rates for each of these personnel in the format given in the annexure. It is worth noting that the billing rates will not be considered in the financial evaluation. However, if additional resources are required during the AMES phase, the rates mentioned in Annexure-XV would be applicable.

The bidder shall not change any member of the Project Team during the course of the project. However, in the unlikely event of a change being required, the procedure for replacement of the personnel can be detailed by the bidder in their response.

5.4 Help Desk Support

i. The Implementing Agency shall provide support in addressing general queries of users, logging requests, assigning requests to specific help desk individuals, recording resolution, tracking overall time taken for resolution, etc.

ii. Technical Support: The Implementing Agency shall provide technical support, in a suitable on-site and off-site combination, from 8AM to 8 PM for all working days (considering six days a week

- from Monday to Saturday) of IITI. If off-site support model is proposed by the Implementing Agency, total (fixed & variable) cost of network connectivity (leased line/ VPN) between IA's Support Centre and the data center (DC) hosting the application has to be borne by the Implementing Agency.

iii. Technical support shall include, but not limited to, installation of new versions/ releases (including next generation release)/upgrades, bug fixes, functionality enhancements, patches to cater to changes (including tax, legal, statutory and policy requirements), any modification or enhancement to existing Institute functionalities/policies', changes to configurations, customizations, database administration, data back-up and archiving, security and other technical assistance.

APPENDIX A: BROAD FUNCTIONAL REQUIREMENT SPECIFICATION

(SEPARATE DOCUMENT)

Functional Requirements Document

I. Administration

A. Finance and Payroll

B. Human Resources

a. Hiring

b. Promotions

II. Academics

III. Purchase Section

IV. Research and Development

A. Project Management

B. Utilization Certificate and Statement of Expenditure

C. Human Resource Management

I

Administration Module

A. Finance and Payroll

Core Module

Finance and Accounts Module should have all necessary functionalities (basic to advanced level) that are essential for any education and research Institute with a student strength of 20000 students. The F&P module should have the functionality for the following.

1. The system should facilitate integration with Tally software.
2. Complete Accounting Package with dynamic reports covering many financial years for e.g 20-30 years.
3. Complete Budgeting Module
4. Complete Payroll package including Income Tax calculation etc.
5. Integration/Interface with HR module, to facilitate integrated functioning with HR Section
6. Integration/Interface with student's module to facilitate integrated functioning with Student & Hostel Sections including Student Fee collection from the date of joining
7. Integration/Interface with Material Management and Purchase module
8. Integration/Interface with R&D Accounts Module
9. Integration/Interaction with Infrastructure Development and Maintenance Division for construction and estate Management
10. A module with integration with Hospital / Dispensary
11. A module with integration with Guest House
12. A module for Tax Administration, like GST(Goods and Services Tax), Income Tax TDSs (Tax deduction at source) other Statutory Liabilities (labor cess, seigniorage, professional Tax).
13. A module for Invoice Raising and GST collection, remission, availing GST Credit.
14. Integration with external agencies like Banks, Income Tax, GST, PFMS (Public Financial Management System), NPS(National Pension Scheme), Professional Tax etc.
15. The system should allow for importing legacy data from MS xls and CSV data and all reports should consider this legacy data also.
16. Financial reports like Annual Accounts in MoE(Ministry of Education) format, Cash Basis and Accrual Basis
17. System should allow for auditing and complete audit trail and audit log
18. A module with integration with other administration divisions as required

Note: The list is not exhaustive and further requirements can be added during the development stage.

Few samples of the functionalities required for a Finance and Accounts are given in detail below:

Claims

Input

There are two types of Input:

1. Personal Claims: TA, Advances, CEA, CPDA etc.
2. Official Claims: PO payments from Stores, Contract Payments from CMD (Construction and maintenance division)/IDO (Infrastructure development office) etc.

Process:

Bill Processing

1. Once the bill is entered into the System, the user will submit online and take a print of the form, attach it with relevant papers like tickets, Boarding Passes etc. and submit the same to the Accounts Section inward. If printing is not preferred, we can fill an online form and submit the relevant receipts/boarding pass, etc. in the accounts section against the system generated ticket number.
2. Provisions should be made so that guest visitors can also do the same.
3. The Inward will accept the bill and an inward number will be generated. The bill will be assigned to the concerned dealing assistant automatically. Dealing Assistants will verify the bills and submit the processed bills to the Assistant Registrar / Deputy Registrar/Joint Registrar.
4. On approval, the bills will be forwarded to the Registrar.
5. On approval of the Registrar, the bills will be forwarded to the accounts section
6. The Accounts Section will verify the availability of Funds, Budget and enter the cheque details. A single cheque can be used for multiple payments and in such case a Bank Advise letter will be generated. Cheque Printing facility is required. Once the cheque is printed and signed, the same will be sent to the bank.
7. For payments integration is required with PFMS, UPI and banking interfaces.
8. The next day, the payment sheet will update the payments with a UTR number and a mail has to be sent to all payees with details of the payment.

Compliance

1. Monthly Tax remission and challans have to be generated.
2. Generation of Tax returns in Prescribed forms is required.
3. Statements to be uploaded in/from PFMS portal are to be generated periodically.
4. Monthly Statements to MoE are to be generated.
5. Bank reconciliation statements
6. Fee dues receivable and collection reports
7. Monthly Expenditure Reports
8. Pay slips

Output

Reports needed as below:

1. Annual Accounts as per MoE Formats
2. PFMS Upload formats, Utilization Certificates
3. Budgeting Formats (Monthly, Quarterly and Yearly), and Projections
4. Form 16 and Form 16A
5. Query Based reports for various scenarios.

Interface

1. This should be able to maintain department-wise budgeting and accounting.
2. It should have a full-fledged accounting module which can maintain ledgers, groups of ledgers, General Ledger, Trial Balance, and prepare Annual Accounts

in formats prescribed by MoE including preparation of P&L Account, Income and Expenditure Account, Balance sheet, Receipts and Payment Account. Preparation of accounts both on cash basis and accrual basis should be possible. Maintenance of Bank Accounts, preparation of Bank Reconciliation Statement online, preparation of scheme-wise accounts and preparation of Utilization Certificates should be enabled.

3. Upload of legacy data should be enabled.
4. Integration with all concerned sections is required.
5. The system should allow preparation of various static and dynamic reports.
6. All the users i.e. Faculty, Staff, Students and Vendors should be able to interact with the system and be able to raise their requests for advances, settlements, reimbursements, recoveries only through the ERP.
7. Functionality for tax administration i.e. to define various taxes, their rates of deductions in different periods, deduction in each bill, remission and its accounting and generation of tax returns in prescribed formats is required.
8. Maintenance of accounts as per the scheme codes and scheme components defined in PFMS and EAT(Expenditure, Advance and Transfer) module of MoE are required. PFMS upload reports are required.
9. Request for Booking of Air tickets and their subsequent matching with the TA claims should be possible.
10. Budgeting: Functionality to define budgets and allow expenditure department-wise, section-wise, HoD-wise, faculty-wise, purpose-wise and ledger-wise, group-wise, OH-wise, period-wise are required. Facility to prepare projected expenditure is required.
11. Functionality for Costing, i.e., facility to define cost centers and reports to assess the costs is required.
12. Dispatch Functionality, to maintain inward, outward and to see the time taken to process various bills, facility to return/hold bills online with remarks is required.
13. Bank Advise letters are required.
14. Data migration from Tally system and its sanity check.
15. For contracts and Agreements, where multiple bills are generated, facility to maintain cumulative amounts as per the Schedule of Payment is required.
16. Facility to record Bank Guarantees, EMDs(Earnest Money Deposits) and Security Deposits collected and returned is required.
17. Fixed Deposits and Investments management
18. Separate Accounting for Conferences and Events. (Receipts and Expenditure)
19. Reimbursement of medical expenses based on medical referral letters

Workflow Management

Inward Section □ Dealing Assistant □ Assistant Registrar □Deputy Registrar □ Joint Registrar □ Registrar □ Payment □ Accounting and Reconciliation □ Reports.

Remarks

1. Inward section
    a. Starts with the Inward seat of the accounts section accepting the hard copy attachments like boarding passes, Tickets for personal claims and invoices / duly passed bills from administration / CMD/IDO etc. for office related payments and issuing an acknowledgement in the system.
2. Dealing Assistant

a. The dealing assistant will check whether the expenditure has a proper sanction, approval and budget, the invoice is in correct format and return it if any one of these is missing.

b. If these conditions are satisfied, then the amounts will be restricted to approved limits and submits the bill to Assistant Registrar (for bills up to a limit say Rs 25000/-) and to Registrar through Assistant Registrar/Deputy Registrar/Joint Registrar (for bills valuing more than Rs 25000/-.

3. Assistant Registrar/ Deputy Registrar

a. AR / DR/JR may pass the bill or reject the bill for reasons to be recorded or hold the bill for clarifications. In each case the bill will be pushed back to the Dealing Assistant for resubmission

4. Registrar

a. All bills passed by AR/ DR/JR will be transmitted to Registrar for approval, who may again accept or reject the bill

5. Release of Payments

a. All bills approved by Registrar will be forwarded to Payment Assistant who will enter the cheque no., amount, the account details of the Payee etc. and prepare a cheque, obtains the signature of the AR/DR/Registrar on the cheque and send it to bank for payment.

6. Accounting, Bank Reconciliation and PFMS Entry

a. UTR nos. / reference nos. of all payments completed will be entered into the system for reconciliation and for sending an intimation to the concerned, for making proper accounting entries and for entry in PFMS & EAT module.

Notes

Various forms are required for both faculty and non faculty members. A few are mentioned below:

1. TA Advance
2. Temporary Advance
3. Reimbursement
4. TA Claim / Settlement
5. Temporary Advance Settlement
6. Imprest Advance
7. Telephone Reimbursement
8. NPS Withdrawal request
9. Medical Reimbursement

By Payroll Section:

1. Monthly Payroll and recoveries particulars
2. Tax deductions and remissions
3. Supplementary Pay Bill
4. Honorarium Claims
5. DA Arrears claims

By HR:

1. LTC Advance
2. LTC Final Claim
3. EL Encashment
4. Service End- claims
5. Increment
6. Promotion

7. Placement
8. Pay Fixation
9. Children Education Allowance

By Administration:

1. House Keeping Bill
2. Manpower Bill
3. Security Bill
4. Pest Control Bill
5. Garbage Bill
6. Catering Service Bills
7. Publicity Bills
8. Other Miscellaneous Bills
9. HEFA Loan Administration
10. JICA Related Expenditure Administration and Control

By Stores:

1. Purchase Order – Advance
2. PO- Final Settlement
3. LC
4. FTT

By Academics:

1. Stipend
2. Fellowship
3. Scholarship
4. PhD Thesis Evaluators Bills

By Director Office:

1. TA Bills.
2. Visitors' Honorarium etc.

By CMD/IDO Section:

1. Electricity Bill
2. Water Bill
3. Work Order Bill
4. RA Bill
5. Hand Receipt Bill
6. Bank Guarantees
7. EMDs and Security Deposits

By Hostel:

1. Caterers Bill
2. Water Bill
3. Other Bills

By Health Center:

1. Pharmacy Bill
2. Specialist Services Bill
3. Other Bills

By Guest House:

1. Dry cleaning Bill

By CITC(Computer and IT Centre)

1. Service Bills

By Horticulture Office:
1. Plantation Bill
2. Road Cleaning Bill
3. Other Bills

Sub Module: Payroll and Taxation Module

Input

1. It should start with the Employee Creation from Establishment/Admin/Faculty Affairs Section along with full details, i.e., PAN No., Bank Details, PRAN No. Family and dependents as these are required for many other activities connected with the Accounts Section.
2. The Payroll process starts with attendance and leave data forwarded by Establishment/Admin.
3. The Pay levels, Grade pay needs to be defined as per the 7th Pay Commission.
4. Any changes in Pay, Pay Level due to Promotion / Increment etc. will be carried out by the Establishment/Admin Section after obtaining due approvals. The career progression of each employee from 2008 needs to be captured in the system.
5. On submission of monthly attendance by the Establishment/Admin Section, the payroll will be generated by AR (payroll) for each group of employees separately.
6. CMD/IDO section will record the recoveries to be made towards License Fee, Electricity and water charges for all employees and approves the same and this will be reflected to AR (Payroll)
7. AR (Payroll) will add further recoveries if any has to be made from the individual salary of the employee. A provision for uploading excel sheets is required.
8. R&D Section will record the honorariums etc, if any paid by them to the employee / faculty and the income tax if any deducted for a particular month. This should be accounted for under the relevant budget head or payroll.
9. Faculty / staff may report any other income received from any sources received like for attending guest lectures, selection committee meetings etc. in a particular month and also report tax if any deducted by the third parties.

Income Tax Process

1. Provision for definition of Income Tax rates applicable for each financial year and various rebates / exemptions available under the Income Tax under various years needs to be defined by the system. Provision for updation / definition of new items should be available.
2. Income Tax to be deducted and remitted to the Govt. Employees' salaries is based on the Income for the whole year and other income defined by the employee. The system should be capable of providing the estimated salary for all employees and the estimated tax to be deducted every month.
3. In calculation of the tax to be deducted, the system should consider the other incomes declared by the employee, and other payments made to the faculty in R&D Projects also.
4. Tax deductions under various sections is required.

Output

Reports needed as below:
1. Payroll Software should be able to send payslips through Email and should be downloadable by the employee.
2. It should provide the Reports to be sent to the Bank such as Payment Advices,

Income Tax Challans to be sent to the Bank and for Online Payment, etc.
3. The Form-16 should also be downloadable by the Employee.
4. The Reports software should be dynamic, flexible and scalable as different reports need to be sent to MoE frequently.
5. All the statutory forms and payments reports should be generated.
6. The reports generated should be downloadable in Excel, Word, PDF and any other user-friendly mode.
7. Report showing the Pending Advances timewise for follow up and settlement.
8. Report calculating interest for delayed settlement of advances.
9. Impress Reports.

Interface

1. It should be able to capture the Attendance.
2. It may be used for Guest House expenses booking under Payroll.
3. There should be a provision to upload External data in excel form for recovery or payment.
4. The Civic Charges of Quarters should be enabled to record and recovery.
5. The income and tax sources from JEE, GATE, R&D and others should also be enabled to record and recover the taxes from Payroll.
6. External source of income and also the taxes should be allowed.
7. There should not be any limit in creating the number of Employees and also in creating the Accounting Heads.
8. Dealing Assistants who want to send the recoveries from salaries should be allowed like LTC Advance, TA Advance etc.

For Reimbursements, Advances and Settlements:

9. The Employee mode should be enabled and allowed to claim Reimbursements, Advances
   and Settlements by Employee themselves.
10. They should be able to claim and view the status of their claims.
11. All types of claims by employees should be enabled.
12. Submission of claim forms in PDF along with bills and invoices.

Remarks

1. The software for payroll may be fully utilized by the Accounts Section and partially by Establishment/Admin Section, Hostels, CMD Office/IDO, Administration, Transport Section, etc.
2. Apart from the above-mentioned requirements there can be additional requirements on developing the
3. software which can be added at that time.

Sub Module: Student Fee related Accounts Module

Input

Students record from Academic Module.

Interface

4. Defining fee structure
5. Generating Fee demand student-wise
6. Generating SBI collect Upload statement
7. Matching of the fee collections with fee demand based on SBI collect report
8. Maintenance of Student Loans

9. Functionality for Student Stipends, Fellowships and Scholarships payments and their account is required.
10. Certain scholarships/refunds like merit cum means scholarship/Remission of Tution Fees and EWS scholarship, etc. will require parents' income certification. Provision for the same must be made.

B. Human Resource Module

There will be two sections, one for teaching staff managed by the Faculty Affairs Office and the other one is for non-teaching staff managed by the Administration Section.

B.1 Faculty Affairs Office

Sub Module: Recruitment

Few samples of functionalities required for this module are as given below:

Input

1. Approval for conduct of Recruitment
2. Publishing of Advertisement
3. Submission of Online application
4. Approval for constitution of Scrutiny Committee
5. Scrutiny of Applications
6. Publishing of Scrutiny/ Shortlisting Status
7. Receipt of representations by Applicants
8. Final shortlisting by Scrutiny Committee
9. Approval for Interview and Selection Committee
10. Forwarding of Call letter for interview/skill test
11. Acknowledgement by Applicants.
12. Receipt of recommendation letter from referees
13. Feedback report on the Seminar of the Applicants
14. Selection feedback for Interview process
15. Forwarding of Offer Letter

Process

1. Uploading documents (pdf, word, excel)
2. Taking input data (based on the parameters) to sort out the applicants' information – preliminary shortlisting of applicants
3. Able to provide privileges to the committee members/Experts to view and provide their remarks
4. Generation of report for Shortlisted/ Provisionally Shortlisted and Not shortlisted candidates
5. Approval process of the Selection Committee Report

Output

1. Should generate and download the reports (applicant's data in pdf, excel and word formats)
2. All approvals as mentioned in the input stage.
3. Generation of Shortlisting Committee Report
4. Publishing of Shortlisting Status

5. Issuing of Call letter
6. Issuing of Invitation Letter to Experts
7. Generation of Selection Committee Report along with corresponding approvals wherever required.
8. Publish the Results
9. Issuing of Offer of appointment letters

Interface

Chairperson, Director, Dean Faculty Affairs, Associate Dean Faculty Affairs, Registrar, JR/DR/AR Faculty Affairs, Members of Scrutiny Committee, Members of Selection Committee & FA Staff.

Workflow Management

Approval for recruitment -> Advertisement -> Receipt of applications -> generation of sheets -> Formation of shortlisting committee(s) -> Assessment of applications by shortlisting committee -> Publishing shortlisting status -> Approval for interview -> Issue of Call letters -> Receipt of Title of Seminar & Presentation -> Receipt of Recommendation letters from Referees -> Access of application data to the Selection committee members -> Data entry -> Publishing results -> Issue of Offer Letter to the selected applicant.

Notes

1. Workflow & interface should be flexible for customization at any stage.
2. Format of Reports/ OOs/ OMs should be flexible for customization at any stage.

Sub Module: Joining Formalities

Input

1. Joining report
2. Relieving Order from the Previous employer, if applicable
3. LPC from the Previous employer, if applicable
4. Experience Certificate(s), if applicable
5. Educational Certificates
6. Medical Fitness Certificate
7. Personal Details like Aadhar, PAN, Photo
8. PRAN details
9. Contact Details
10. Forms of Character & Antecedent verification
11. Hometown declaration
12. Details of Dependent Family Members
13. Details for email creation
14. Details for ID Card
15. Details for Medical card/book

Process

1. Uploading documents/images
2. Data Entry
3. Sending requests to other department(s)
4. Pay fixation, if applicable
5. Obtaining approvals

Output

1. Issue of Joining Order
2. Creation of email id

3. Issue of ID Card and Dependent ID Cards
4. Issue of Medical Card/book(s)
5. Issue of PRAN Card
6. Issue of Service Certificates for Electricity/ Mobile / LPG connections etc.

Workflow Management

Uploading documents -> Entry of Details -> generate notesheet for approval -> Generate Joining orders for issuance -> Creation of email-id -> Generate ID card for printing -> Generate Medical book(s) for printing -> Generate request for PC and phone.

Notes

1. Workflow & interface should be flexible for customization at any stage.
2. Format of Reports/ Oos(Office Orders)/ Oms(Office Memorandum) should be flexible for customization at any stage

Sub Module: General Services

Input

1. Service Book
2. Family declaration
3. Profile Management
4. Basic pay and DNI
5. Character & Antecedents verification reports
6. Caste verification reports
7. Annual increment processing
8. PRAN details
9. Self-appraisal for Faculty
10. Annual Performance Appraisal Review for Staff
11. Annual Immovable Property Return
12. Constitution of DPC committee
13. Probation clearance

Process

1. Uploading documents
2. Updating the details (Data Entry)
3. Uploading images
4. Generating note sheet for approval
5. Sending requests to other department (s)
6. Obtaining approvals

Output

1. Generate Profile of the Employee
2. Generate orders of annual increments and communication to the concerned section(s) under intimation to the individual
3. Generation of ACR/ APAR forms
4. Generation of reports with the details of receipt of C&A and Caste verification reports for probation clearance
5. Issue of Orders

Interface

Director, Dean Faculty Affairs, Associate Dean Faculty Affairs, Registrar, JR/DR/AR Faculty Affairs, HoD & FA Staff.

Workflow Management

Uploading documents -> Entry of Details -> Generate note sheet for approval ->

Obtaining of approval -> Generate Office Orders/ Memorandums for issue.

Sub Module: Retirement and Resignation

Input

1. Approval for Resignation
2. Submission of No Dues Form
3. Auto-closure of benefits
4. Encashment of EL
5. Gratuity
6. Issue of Service Certificate
7. Issue of LPC
8. Transfer of Service Book, if applicable

Process

1. Uploading documents
2. Updating the details (Data Entry)
3. Uploading images
4. Generating notesheet for approval
5. Sending requests to other department(s)
6. Obtaining approvals

Output

Issue of the Orders as per the input

Interface

Chairperson, Director, Dean Faculty Affairs, Associate Dean Faculty Affairs, Registrar, JR/DR/AR Faculty Affairs, HoD, & Section Officer/ Supdt.

Workflow Management

Uploading documents -> Entry of Details -> generate notes for approval ->obtaining approval from the competent authority(ies)-> generate orders for issue

Notes

1. Workflow & interface should be flexible for customization at any stage.
2. Format of Reports/ OOs/ OMs should be flexible for customization at any stage.

Sub Module: Employee benefits

Input

1. Holiday list management
2. Leave Management - CL, Vacation Leave (Faculty), EL, HPL (for staff), Commuted Leave, Maternity Leave, Paternity Leave, Child Care Leave, Extraordinary Leave, Leave Not Due, Sabbatical Leave, Quarantine Leave, Study Leave
3. Joining Report
4. HRA processing
5. Annual Increment
6. Periodic DA hike
7. Lien
8. Placement/Absorption/Movement/Promotions
9. Advance processing for LTC, Medical, HBA etc.
10. Loan processing
11. Income tax declaration
12. Annual immovable property return
13. NOC
14. Applying for outside job/ Attending interview

15. Pursue higher studies.
16. Apply for new/renewal of Passport/Visa
17. Experience/Service certificate
18. Additional Responsibilities for e.g. Dean/ Associate Dean/ HoD etc.
19. Incentives
20. Acquiring higher qualification
21. Any other

Process

1. Uploading documents
2. Data entry
3. Generating notes for approval
4. Sending requests to other department(s)
5. Obtaining approvals from the authorities

Output

1. Issue of No Objection certificate for different purposes as per the input
2. Issue of Orders for different purposes as per the input Generation of reports related to annual property returns

Interface

Joining / Confirmation - Applicant -> HoD -> FA Staff -> AR/DR/JR - > Registrar -> ADoFA (if applicable) -> DoFA

LTC – Applicant -> HoD -> FA Staff -> AR/DR/JR - > Registrar -> ADoFA (if applicable) -> DoFA

Annual Increment - FA Staff -> AR/DR/JR - > Registrar -> ADoFA (if applicable) -> DoFA -> Director

Absorption/ Promotion/ Lien - Applicant -> HoD -> FA Staff -> AR/DR/JR - > Registrar -> ADoFA (if applicable) -> DoFA -> Director -> Chairperson

Leaves (Faculty) - Applicant -> HoD -> DoFA (if applicable) -> DoIA (if applicable) -> Director (if applicable) -> Chairperson (if applicable)

NOC/ Experience/Service Certificate – Applicant -> HoD -> FA Staff -> AR/DR/JR - > Registrar -> ADoFA (if applicable) -> DoFA -> Director

NOC for Visa - Applicant -> HoD -> FA Staff -> AR/DR/JR - > ADoFA (if applicable) -> DoFA

Any other case - Applicant -> HoD -> FA Staff -> AR/DR/JR - > Registrar -> ADoFA (if applicable) -> DoFA -> Director -> Chairperson (if applicable)

Workflow Management

Uploading documents -> Entry of Details -> generate notes for approval ->obtaining approval from the competent authority(ies)-> generate orders for issue

Notes

1. Workflow & interface should be flexible for customization at any stage.
2. Format of Reports/ OOs/ OMs should be flexible for customization at any stage

B.2 Administration Office

Sub Module: Recruitment

Input

1. Publish advertisement
2. Submission of on-line application
3. Constitution of Scrutiny Committee

4. Scrutiny of applications
5. Departmental shortlisting
6. Publishing of Scrutiny/ Shortlisting Status
7. Receiving of representations by the applicants within a week
8. Final shortlisting by the institute/ Scrutiny Committee
9. Online comment by reviewers
10. Online assessment by referee
11. Call letter processing for written/skill test.
12. Publication of result of written/skill test based on cut-off set by the committee
13. Selection Committee formation for Interview/ Personality Test
14. Call Letter processing for Interview / Personality Test
15. View access to experts

Process

1. Uploading documents (pdf, word, excel)
2. Taking input data (based on the parameters) to sort out the applicants' information – preliminary shortlisting of the applicants
3. Able to provide privileges to the committee members/experts to view and give their remarks
4. Generation of report for Shortlisted/ Provisionally Shortlisted and Not shortlisted candidates
5. Approval process of the Selection Committee Report

Output

1. Should generate and download the reports (applicants data in pdf, excel and word formats)
2. Publishing of Shortlisting Status
3. Issue of admit card/ call letter
4. Generation of Selection Committee Report
5. Publish the Results
6. Issue of offer/appointment letters

Interface

Director, Dean-Admin, Dean-Faculty, Registrar, Members of Scrutiny Committee, Members Review Committee, Members of Selection Committee, DR/ AR (Admin) & Section Officer/ Supdt.

Director, Dean-Admin, Dean-Faculty, Registrar should have the privilege to restrict the access to the above members at different levels

Workflow Management

Advertisement -> receipt of the applications -> generation of sheets-> formation of committee(s) -> assessment of applications by the committee -> publishing shortlisting status of the candidates -> mail communication and SMS alerts to the candidates (call letter) at the stages of both written/ skill Test and Interview/ Personality Test ->access of application data to the selection committee members -> data entry->publishing results ->mail communication to the candidate (offer of appointment)

Sub Module: Joining Formalities

Input

1. Relieving order from the previous employer
2. LPC from the previous employer
3. Experience Certificate from the previous employer

4. Medical fitness certificate
5. Joining report
6. Forms of Character & Antecedent verification
7. Hometown declaration
8. Details of Dependent Family Members
9. Details for email creation
10. Details for ID Card
11. Details for Medical card/book

Process

1. Uploading documents/images
2. Data Entry
3. Sending requests to other department(s)
4. Pay fixation
5. Obtaining approvals from the authorities

Output

1. Issue of Joining Letter
2. Creation of email id
3. Issue of ID Card and Dependent ID Cards
4. Issue of Medical Card/book(s)
5. Issue of Service Certificates for Electricity/ Mobile / LPG connections etc

Interface

For pay fixation and Joining Order

- ARs(Admin)>>DR (Admin)>>AR/DR/JR(F&A)>>Registrar>>Dean-Admin>>Director

For creation of email ID

- Admin section & Computer Centre for issue of ID card/ dependent cards
- Admin section & Health Centre issue Medical Books

Workflow Management

Uploading documents -> Entry of Details -> generate notes for approval -> generate Joining orders for issuance, creation of email-id, generate ID card for printing, generate Medical book(s) for printing

Sub Module: General Services

Input

1. Service Book
2. Family declaration
3. Profile Management
4. Basic pay and DNI
5. Character & Antecedents verification reports
6. Caste verification reports
7. Annual increment processing
8. PRAN details
9. Self-appraisal for Faculty
10. APAR for Staff
11. Annual Immovable Property Return
12. Constitution of DPC committee
13. Probation clearance

Process

1. Uploading documents

2. Updating the details (Data Entry)
3. Uploading images
4. Generating notes for approval
5. Sending requests to other department(s)
6. Obtaining approvals from the authorities

Output

1. Generate Profile of the Employee
2. Generate orders of annual increments and communication to the concerned section(s) under intimation to the individual
3. Generation of ACR/ APAR forms
4. Generation of reports with the details of receipt of C&A and Caste verification reports for probation clearance
5. Issue of Orders

Interface

For Annual increments

- SO>>ARs(Admin)>>DR (Admin)>>JR(F&A) >> Registrar

Staff, Reporting & Reviewing Officers Probation clearance (Faculty)

- SO>>AR(Admin)>>DR(Admin)> Registrar>Dean (Faculty) >>Director

Probation clearance (Staff)

- SO>>AR(Admin -Staff)>>DR(Admin)>>Registrar>>Dean (Admin) >>Director

For extension of Probation

- final approving authority in both the cases of Faculty and Staff - Director

Workflow Management

Uploading documents -> Entry of Details -> generate notes for approval ->obtaining approval from the competent authority(ies)-> generate orders for issue

Sub Module: Employee benefits

Input

1. Holiday list management
2. Leave Management
    a. Casual Leave(CL)
    b. Vacation Leave (Faculty)
    c. Earned Leave (EL)
    d. (Half Paid Leave)
    e. Commuted Leave
    f. Maternity Leave
    g. Paternity Leave
    h. Child Care Leave
    i. Extraordinary Leave
    j. Leave Not Due
    k. Sabbatical Leave
    l. Quarantine Leave
    m. Study Leave
3. Joining Report
4. HRA processing
5. Annual Increment
6. Periodic DA hike
7. Placement/Absorption/Movement/Promotions
8. Advance processing for

--LTC, Medical, HBA etc.
9. Loan processing
10. Income tax declaration
11. Annual property return
12. NOC
    a. Applying for outside job/Attending interview
    b. To pursue higher studies
    c. To apply for new/renewal of Passport/Visa
13. Experience/Service certificate
14. Internal Transfers (for staff)
15. Incentives (for staff)
    a. Acquiring higher qualification
    b. Any other

Process
1. Uploading documents
2. Data entry
3. Generating notes for approval
4. Sending requests to other department(s)
5. Obtaining approvals from the authorities

Output
1. Issue of No Objection certificate for different purposes as per the input
2. Issue of Orders for different purposes as per the input
3. Generation of reports related to annual property returns

Interface
LTC
- Staff>>AR(Admin)>>DR (Admin) >> Registrar

Annual Property Returns
- Staff>>AR(Admin)>>DR (Admin),

Placement/absorption/movement/promotion
- Staff>> AR(Admin)>>DR (Admin)>> DPC (Committee members)>> Registrar >>Dean (Faculty)/Dean (Admin) >> Director

Leaves (Staff)
- Staff>>Concerned Head of the Section
- NOC (Staff) Staff>>SO>>AR(Admin)>>DR(Admin)>>Dean (Admin)

Experience/Service Certificate (Staff)
- Staff>>SO>>AR(Admin)>>DR(Admin) >>Registrar

Workflow Management
Uploading documents -> Entry of Details -> generate notes for approval ->obtaining approval from the competent authority(ies)-> generate orders for issue

Remarks
Leave workflow may be customized as per the Institute Leave Policy.

Sub Module: Retirement and Resignation
Input
1. Sub-sub module: Retirement processing
    a. Auto-closure of benefits
    b. Encashment of EL
    c. Gratuity
    d. Issue of service certificate

    e. Issue of LPC
2. Sub-sub module: Resignation processing
    a. Auto-closure of benefits
    b. Encashment of EL
    c. Gratuity
    d. Issue of service certificate
    e. Issue of LPC
    f. Transfer of Service Book
    g. Lien details

Process

1. Uploading documents
2. Updating the details (Data Entry)
3. Uploading images
4. Generating notes for approval
5. Sending requests to other department(s)
6. Obtaining approvals from the authorities

Output

Issue of the Orders as per the input

Interface

Staff>>SO>>AR(Admin)>>DR(Admin)>>JR(F&A)>>Registrar>>Dean(Admin)>>Direc tor

Workflow Management

Uploading documents -> Entry of Details -> generate notes for approval ->obtaining approval from the competent authority(ies)-> generate orders for issue

Notes

Sub modules for managing Legal Cases/RTI/ CPGRAMS matters and Institute level grievances need to be integrated/developed to monitor and follow up such matters online. Details will be shared during the implementation phase.

II

Academic Module

The following should be taken care while designing the academic modules.

1. Academic module should have the ability to generate different types of reports which can be customized and drilled down to granular level.
2. It should generate alerts based on the calendar and activities. Alerts can be sent using different means such as through online portal when user logs in, via email, via SMS, etc. For example, the semester registration date can be intimated to a student. The grading dates can be communicated to a faculty member.
3. Escalation chain with turnaround time for all activities to be integrated along with Auto submission facility wherever possible/applicable.
4. This module should be flexible enough to accommodate changes in workflow and inputs.
5. System Validation checks to be enabled wherever needed.
6. All kinds of data analytics statistical analytics including graphical representation

should be possible using historical and current data.

7. For all sub-modules provision for exceptional handling must be provided with a approvals from different channels. For example, a student must graduate in certain time duration and if he/she needs extra time due to unavoidable circumstances, there should be provision to extend it.
8. Existing data with academic office must be migrated/integrated with new ERP system.

Sub Module 1: FAQs for Students

Input

FAQs, Academic rules, Senate minutes and office procedures etc.

Process

Upload files- word, PDF, etc.

Output

To view Academic rules, Senate minutes and office procedures

Interface

Students, Faculty, admin and Academic Staff

Workflow Management

An office assistant from academic office will login and update these from time-to-time

Sub Module 2 : Admissions- UG (BTech Programs)

Input

1. List of admitted students and hard copies of Personal Data Forms received from JEE.
2. Additional information as required*, collected from students.
3. Fee Structure to be uploaded- Fields required such as Seat acceptance fees and balance amount (category wise) to be collected

Process

1. Lists (B Tech) to be made available to Hostel Management for hostel room allocation.
4. Student category-wise fee structure and final student list to be made available to Finance & Accounts for fee collection.
2. Calculate mean, median and mode of JEE(Adv) ranks of admitted students

Output

1. Admissions status
2. Gender-wise, Category-wise (Discipline, SC/ST, Minority community, Below/Above Poverty Line, Rural/urban, State/Union Territory) list of (B Tech) students
3. Updated student profile of students appearing in the final list
4. Report on mean, median and mode of JEE(Adv) ranks of admitted students for authorized access.
5. Drill down reports w.r.t admissions

Interface

1. Finance & Accounts module for fee collection, issue of fee receipt.
2. Registration sub-module for enrolling admitted students into prescribed/selected courses.
3. Student Management Sub-module
4. Student affairs (hostel, mess and gymkhana)

Workflow Management

1. Student data received from JEE office and additional data collected directly from students should be captured by the system.

Remarks

The student/admission data should be shown in graphical format with pie charts, demography, gender distribution, etc.

Sub Module 3 : Admissions - MSc

Input

1. Integration of data received from Joint Admission for Masters (JAM) organizing Institute.
2. List of admitted students received from JAM.
3. Additional information as required and collected from students. – May be collected when they arrive in the campus.
4. Fee Structure to be uploaded - Fields required such as Seat acceptance fees and balance amount (category wise) to be collected.

Process

1. Lists to be made available to Hostel Management for hostel room allocation.
2. Student category-wise fee structure and final student list to be made available to Finance & Accounts for fee collection

Output

1. Admissions status
2. Gender-wise, Category-wise (department, Gen-EWS/ OBC, PwD, SC/ST, Minority community, Below/Above Below Poverty Line, Rural/urban, State/Union Territory) list of students
3. Updated student profile of students appearing in the final list
4. Drill down reports as applicable

Interface

1. Finance & Accounts module for fee collection, issue of fee receipt.
2. Registration sub-module for enrolling admitted students into prescribed/selected courses.
3. Student affairs (hostel, mess and gymkhana)

Workflow Management

1. Student data received from the JAM office and additional data collected directly from students should be captured by the system
2. Based on fees paid and upload of certificates final list to be generated

Remarks

Graphs and chart representation are required.

Sub Module 4 : Admissions – MTech/M.S by Research

Input

1. Types of programs-M Tech/MS by research
2. Eligibility criteria will be different from program-to-program w.r.t the qualifying examination and 2-3 parameters such as GATE rank. + admission criteria for different categories like DF, SW, IS and International.
3. An online application form for each program and registration at Common Admission Portal (COAP)
4. Integration of data received from departments (eligibility criteria)
5. Fee Structure to be uploaded- Fields required such as Seat acceptance fees and balance amount (category wise) to be collected

6. Offers accepted by the selected candidates

Process

1. Dept. wise/ program wise intake to be fixed on some parameters and formula - number of seats to be fixed
2. Whenever there is an advertisement made on the Website, ERP Admissions Module has to be enabled and the student should be able to apply for admission in ERP.
3. Record and track applications received
4. Respond to queries received online and offline about the programs
5. Periodically update FAQs relating to the programs, made available on the website.
6. Schedule and communicate the selection process and dates to applicants and also to the Selection Panel.
7. All the applications have to be received by the respective department HOD/ faculty in charge.
8. Verify documents - The dept. should be able to shortlist based on some filters/ criteria (chosen eligibility criteria)
9. Conduct selection process - The department will conduct written examinations and /interviews and finalize the suitable candidates.
10. Admission approval process - Approval chain for final selected candidates
11. Announcing the selected candidate lists and wait listed applicants if any.
12. Final admitted student lists to be made available to the academic office for initiating the registration process.
13. Acceptance/decline of admission by students to be received by the respective departments with a copy to Academic section.
14. Information from application to be captured in the student profile.

Output

Offer letter should be sent to the selected candidates. Reports such as:

1. Record and track of applications received.
2. Schedule of selection processes, evaluation report.
3. List of selected students.
4. List of students in the waiting list.
5. List of students who have been admitted.
6. Gender-wise, Category-wise (Discipline, SC/ST, Minority community, Below/Above BPL, Rural/urban) list of students Updated student profile of students appearing in the final list
7. Result communication (with specified viewership rights)
8. Drill down reports w.r.t admissions

Interface

1. Show list of admitted students and category- wise fee structure to Finance & Accounts for fee collection and issue of fee receipt.
2. Registration sub-module for enrolling admitted students into prescribed/selected courses
3. Faculty In charge and HoD office.
4. Registration sub-module for enrolling admitted students into prescribed/selected courses.
5. Student Information Management sub-module
6. Dept. (Faculty/ Department Postgraduate Committee Convener/Head of the

Department) interface for convening selection panel meeting and conducting selection process
7. Documents Management for archiving documents relating to selection process
8. Hostel office interface

Workflow Management

Student data should be captured by the system Dept.: Faculty>HOD>
Academic office: Dealing Assistant> Assistant Registrar> Deputy Registrar> Dean> Director

Remarks

Solution should be flexible to handle many variations in admission process of PG program (e.g., Start Early program, Program for external, sponsored candidates, Project based program, QIP, Joint degree programs with Indian or foreign universities and organizations, etc.); similarly there may be variations of MTech program (Regular 2 year. program, 3-year program, Part-time program, 1 year specific program etc.).

Sub Module 5: Admissions - PhD (Regular admissions)

Input

1. Eligibility criteria will be different from program-to-program w.r.t the qualifying examination and 2-3 parameters (GATE rank)
2. An online application form for each program
3. Integration of data received from departments (eligibility criteria)
4. Fee Structure to be uploaded- Fields required such as Seat acceptance fees and balance amount (category wise) to be collected.
5. Offers accepted by the selected candidates

Process

1. Department wise/ program wise intake can be fixed on some parameters and formula - number of seats to be fixed.
2. Whenever an advertisement is made on Website, ERP Admissions Module must be enabled, and the student should be able to apply for admission in ERP.
3. Record and track applications received.
4. Respond to queries received online and offline about the programs.
5. Schedule and communicate the selection process and dates to applicants and also to the Selection Panel.
6. All the applications must be received by the respective department HOD/ faculty in charge.
7. Departments can scrutinize the applications received. Respective departments should be able to shortlist based on some filters/ criteria (eligibility criteria)
8. Academic office can verify documents of admitted students either online or offline at the time of joining. If offline verification is done, then a remark of completing the same can be recorded in the system.
9. Conduct selection- The department can conduct written examinations and/or interviews or any one of them to finalize the suitable candidates.
10. Admission approval process - Approval chain for final selected candidates be made available.
11. Announce selection results on the website/portal.
12. Selection list be made available to the academic office for initiating the registration process.
13. Acceptance/decline of admission offer by students to be received by the

respective departments with a copy to Academic section

14. Information from the application to be captured in the student profile.

Output

Offer letters should be sent to the selected candidates. Reports such as:

1. Record and track of applications received.
2. Schedule of selection processes, evaluation report.
3. List of selected students.
4. List of students in the waiting list.
5. List of students who have been admitted.
6. Gender-wise, Category-wise (Discipline, SC/ST, Minority community, Below/Above Poverty Line, Rural/urban) list of students Updated student profile of students appearing in the final list.
7. Result communication (with specified viewership rights)
8. Drill down reports w.r.t admissions

Interface

1. Show list of admitted students and category- wise fee structure to Finance & Accounts for fee collection and issue of fee receipt.
2. Registration sub-module for enrolling admitted students into prescribed/selected courses
3. Faculty In charge and HoD office.
4. Registration sub module for enrolling admitted students into prescribed/selected courses
5. Student Information Management sub-module
6. Dept. (Faculty/ DUGC/HoD) interface for convening selection panel meeting and conducting selection process
7. Documents Management for archiving documents relating to selection process
8. Hostel office interface

Workflow Management

1. Student data should be captured by the system Dept. : Faculty>HOD>
2. Acad. office: Dealing Assistant> Assistant Registrar> Deputy Registrar> Dean> Director

Remarks

Solution should be flexible to handle many variations in admission process of PG and Ph.D. program (e.g., Start Early program, Program for external, sponsored candidates, Project based program, QIP, Joint doctoral program, etc);

Sub Module 6: Student Registration

Input

1. List of students eligible for registration
2. Selected students' details and some basic information such as email ID to be entered by a dealing assistant and accordingly student credentials have to be generated and shared with students.
3. Students can login with their credentials and fill Personal Details such as Qualification, Address, Nationality, etc.
4. This is allowed one time and on request if needed specifically
5. Students make the final payment(balance amount) through SBI collect/Paytm or other online payment channels to confirm and join.

Process

1. Students are allowed to fill the requested fields before the registration date. This is communicated to them by different means like email, SMS etc. Students can upload the fee payment receipt on the portal.
2. On the date of joining, students need to pay remaining fees, the Dealing Assistant will verify the uploaded original certificates and fee receipt (online) and transfer it to officials as shown below for approvals.
    - Assistant Registrar
    - Deputy Registrar
3. If information/ document submission is pending from student, then reminders have to be sent to the student and dealing assistant.
4. Once registration is completed, Roll no. to be generated if required (only for the first time).
5. The roll number needs to be updated in a page of the Computer Centre portal along with email ID and Internet credentials. There is a unique roll number pattern - can be assigned by the system based on the formula

Output

1. Dashboard with Students details for viewing various drill down and exception reports such as
    a. Filled in registration forms.
    b. Registered Student's list program wise, Branch wise, Category wise, Gender wise, Location wise etc.
    c. List of students not registered with reasons, list of students dropped out of program, leave granted for semester,
    d. Report on late registrations, exemptions, late fee collected

Interface

Once student is registered then

1. Student information management module
2. Hostel office module- To allocate Hostel rooms to Students.
3. Computer Centre- To allocate email ids, Wi-Fi Credentials etc.
4. ID Card Department- To print student ID cards of students.
5. Depts. - To view and plan activities
6. Finance and Accounts Section- To view Fee Payment status.
7. Central Library
8. Health Center

Workflow Management

1. Student Dealing Assistant (A.P) Assistant Registrar (A.P) Deputy Registrar (A.P)
2. Id card Dept
3. Hostel dept
4. Computer Centre

Remarks

This module is needed for all programs - B.Tech/M.Tech/Ph.D/M.Sc/Post Doc.

Sub Module 7 : Student Information Management

Input

1. Personal Data File of students.
2. Various Certificates uploaded by students
3. Results of entrance exams (Type of Exam).

4. Courses for which student is registered.
5. Provision for NEP course structure in the Student Information Management
6. Specialization (MTech & Ph.D. students) if applicable.
7. Course grades of completed semesters.
8. Program conversions- Dual degree details.
9. Conferences attended, financial assistance, Papers published.
10. Awards received.
11. Internship projects, research projects, community engagements, participation and achievements in sports and cultural activities, scholarships, merit, and appreciation certificates received, hostel details.
12. Fellowship and HRA claimed.
13. Dues from any section.
14. Link to Computer and Information Technology Centre which will provide support for Wi-Fi, network login setup/Reset page and IT support etc.
15. Any special remarks from student affairs/department/campus security team, etc (for ex. Disciplinary action)

Process

Continuous updating of student database for monitoring the complete student life cycle

Output

1. Student database with all relevant information about students.
2. For PG students, the database should capture information about fellowships and grants, supervisor details, doctoral advisory committee, examiners, research projects worked on, research papers published/presented, patents generated, research progress assessment report, etc.
3. Timely alerts to student/faculty and academic staff at various stages based on Academic Calendar

Interface

1. Admission sub-module
2. Registration sub-module
3. Course Management sub-module
4. Alumni relations module
5. Finance and Accounts Module- To view Fee Payment status.
6. Hostel office module- To allocate Hostel rooms to Students and mess.
7. Placement module
8. Computer Centre- To allocate email ids, Wifi Credentials etc.
9. ID Card Department- to print student ID cards of students.
10. Depts. - for various academic updates and activities of student lifecycle
11. Library
12. Health Center

Workflow Management

Student -> Dealing Assistant (A.P) ->Assistant Registrar (A.P)->Deputy Registrar (A.P)-> Dean

Remarks

1. Solution should provide:
2. Dashboards for admission demographics, student performance record
3. Ability to migrate data to placement/alumni database.
4. Student Information Management should be the single source of reference for all

clearances and 'No dues' to be obtalned by students at any polnt of tlme.

Sub Module 8: Course Registration and Management

Input

1. Program-wise and semester-wise list of courses offered along with mapping of some with specific prerequisite courses and grades in those courses
2. Classification of courses - Department core, electives, additional Audit courses, LA/CA etc. and mapping
3. Time table Slots
4. Faculty advisors/course instructor list and mapping with courses
5. Program regulations
6. Academic calendar, examinations calendar
7. Course mapping with - Infrastructure available in terms of classrooms, labs, seminar rooms, conference rooms, etc.
8. Form to add/drop course
9. Fee payment status
10. Approval of faculty advisor
11. Attendance of students course wise - biometric mapping

Process

1. Faculty course allocation
2. Student allocation to sections
3. Attendance sheets
4. Course time tables and exam time tables given the scheduling constraints including classroom allocation
5. Conducting online and offline exams/quizzes
6. Students submit online registration form approved by Faculty Advisor within the stipulated time and Fee paid details
7. Allow students to add/drop options within specified deadlines
8. Update registration records for additions and deletions of courses -Approval process for course overload/reduced load
9. Approval for late registration by Dean of Academic Affairs

Output

1. Faculty-wise, course-wise and program-wise course allocation schedules
2. Time tables for lectures, tutorials and lab sessions
3. Exam time tables, exam seating plans
4. Student feedback reports
5. Student database with all relevant information about students.
6. Alerts to students at various stages.

List of dropped courses

Revised registration status after adding/dropping courses

Interface

1. Registration submodule
2. Student Information Management sub module
3. Result management sub module
4. Student course feedback sub module
5. Accounts Module- Only after Fees payment (after confirmation of Accounts Section) course registration can be done by the student.

Workflow Management

Student ->Dealing Assistant (A.P) ->Assistant Registrar (A.P)->Deputy Registrar (A.P)->Id card Dept ->Hostel dept->Computer and Information Technology Centre

Remarks

1. Proposed solution should integrate with biometric/smartcard system which will be used for recording student attendance
2. Registration of courses module - Semester wise (Should have a list of courses, pre-requisites, credits, time slots, course types, segments etc.)
3. Pre- Registration module- Should have the list of courses, credits, time slots, course types, segments etc.
4. For Phd students registration for courses is required only till course work is completed. However, academic registration is required every semester like all other students.
5. Drill down and exception reports for different users

Sub Module 9 : Examination Management

Input

1. Quizzes
2. Assignments
3. Exam Schedule- Segment wise, Mid semester exam, End Semester, Supplementary, Summer Term, Winter Term, etc.
4. Exam Question Papers etc.

Process

1. Faculty members initiate the requests for an exam if some assistance is required from the academic office.
2. Academic office will announce the mid semester and end semester exams as per the pre-decided calendar dates
3. Faculty requests will be acknowledged through email

Output

Different types of reports like attendance sheet for different exams

Interface

1. Course Management Module
2. Faculty Module

Workflow Management

Faculty> Dealing Assistant(A.P)

Remarks

Various reports based on the inputs and outputs required.

Sub Module 10: Results Management

Input

Grade submissions by faculty for each evaluation component, for each course and program

Process

1. Registration of additional credits based on CGPA
2. List of PG students with more than or equal to a specified grade
3. Semester-wise compilation of grades and calculation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)
4. Online Generation and printing of grade sheets/ transcripts for each semester
5. Online Generation and printing of Consolidated Grade, Report, Provisional and

original degree certificate at the end of the program
6. List of PhD/MTech/BTech students with less than prescribed CGPA will be identified.

Output

1. Online Grade sheets, Transcripts and Consolidated Grade Reports, Provisional and original degree certificate at the end of the program
2. SGPA and CGPA distribution including graphical presentation
3. No. of backlogs students
4. List of graduating students
5. List of students terminated from the program
6. Relevant credits of courses should be updated in the **Academic Bank of Credits**
7. Various drill down reports

Interface

1. Faculty Request - Grades upload and Grade change module
2. Course Management Module
3. Student Information Management Module
4. Placement module
5. No Dues module for final issue of certificates

Workflow Management

Dealing Assistant -> DR -> Dean Academic

Remarks

Faculty Advisor /DUGC/ DPGC/ HoD should be able to view the grades, SGPA and CGPA

Sub Module 11: Student Duplicate ID Card

Input

1. Student to fill request form by feeding his roll no.

Process

1. Student pays the prescribed fee through SBI collect or other online payment methods and upload the required documents
2. Dealing Assistant (A.P) will verify the uploaded documents and forward for approval to Assistant Registrar (A.P) then to Deputy Registrar (A.P).
3. Once approved it is sent to the ID card Dept.

Output

Student ID cards will be given by the ID Card department

Interface

1. Payment Gateway or Finance and Accounts Module
2. ID Card Printing Department

Workflow Management

Student -> Dealing Assistant (A.P) -> Assistant Registrar (A.P)-> Deputy Registrar (A.P) -> Id card Dept

Remarks

Sub Module 12: Student Certificates

Input

Templates for all kinds of forms to be available

1. All Types of Bonafide Certificates
2. NOCs
3. Expected Graduation certificate

4. Course Completion certificate
5. Thesis submission certificate/ Viva Completion Certificate
6. Provisional degree certificate
7. Migration
8. Degree Certificate
9. Duplicate Degree Certificate
10. Teaching Assistantship Certificate
11. Permission for attending conferences
12. No Dues certificate
13. Duplicate certificates with prescribed fees/charges

Process

1. Students will fill the respective form for the required certificate.
2. Students pay necessary fees wherever applicable for obtaining the certificates and upload the fee receipt.

Output

System generated Certificate (specific formats) will be issued based on the input form on approval of DR.

Interface

1. Student Information Management Module
2. Student course registration sub module
3. Interface with payment portals required. Provision of print receipt from such payment portals.

Workflow Management

Student -> Dealing Assistant (A.P) -> Assistant Registrar (A.P) -> Deputy Registrar (A.P)

Remarks

Reminder required- If not completed within the stipulated time (working days) to Dealing Assistant.

Sub Module 13: Student Fellowship

Input

Students application for a specific type of Fellowship.

a. Institute Fellowship (Ministry of Education).
b. Project Fellowship (R&D).
c. DST Inspire and PMRF.
d. CSIR Fellowship
e. Others

Process

A fellowship structure wrt. MHRD/ Project/others is required. (Structure contains Fellowship start date fellowship end date, amount of fellowship per month, HRA if applicable, Arrears if applicable).

1. Students from his login will be able to apply for fellowship as per his/her eligibility.
2. Students need to apply for a fellowship within stipulated time.
3. Once a student applies for fellowship, the faculty advisor/Mentor/Guide needs to approve it after verification.
4. If leaves have been availed in excess than permitted, then the necessary

amount must be deducted.

5. Attendance validation required based on biometric attendance or a clearance from faculty supervisor/advisor/course coordinator
6. Academic Section will forward the list to accounts section/(CSIR or other funding agency) for disbursement of fellowship (separate format based on funding agency to be generated)

Output

Reports such as:

1. List of Students Eligible for applying for a fellowship.
2. List of Students who have applied.
3. List of Students to whom fellowship is disbursed.
4. List of Students to whom fellowship is to be disbursed.
5. Online filled in forms of individual applicants and group of all applications based on fellowship type.

Interface

1. Departments (FA/HoD) approval
2. R & D section to enter details
3. Finance and accounts module - Fellowship payment

Workflow Management

1. Departments (FA/HoD) approval
2. Student -> Dealing Assistant -> Assistant Registrar-> Deputy Registrar (A.P) -> Dean Academic
3. Sent to R&D / Accounts

Remarks

Reminders required- on a fixed date to the Dealing Assistant, Dept FA/Guide/ HoD for approval, Accounts staff etc.

If an institute is providing an interim fellowship the same should be reflected in the personal file of the student and also in the finance section.

Sub Module 14: Scholarships

Input

1. Students will select and apply for the eligible scholarship from the list of available scholarships. Based on his enrolled program the options to be displayed in a drop-down menu.
2. Course and academic performance.
3. Category/geography

Process

1. Students have to submit the online application form. He/she needs to upload the supporting documents (income certificate/ ITR, caste certificate etc.)
2. Dealing assistant will verify the application and forward it to higher officials for further processing based on CGPA/ merit or any other criteria fixed.
3. Automatic mapping of available scholarships to eligible candidates can be attempted.
4. Students should be able to view the status of his application with remarks placed on his application.
5. The final list of eligible students will be forwarded to accounts section for

disbursement of scholarship amount.

Output

1. Approved list to be sent to accounts section
2. Reports such as :
    a. List of Students who have applied.
    b. List of Students to whom scholarship is disbursed.
3. List of Students to whom scholarship is to be disbursed/ rejected.

Interface

1. Dept. Approval (FA/Guide etc)
2. Finance and accounts section - verifying ITRs/income certificate and processing scholarship payment

Workflow Management

Student -> Dealing Assistant (A.P) -> Assistant Registrar (A.P) -> Deputy Registrar (A.P) ->Dean (A.P)->To DR Accounts

Remarks

Reminder required - on a fixed date to stakeholders as per schedule

Sub Module 15: Student Requests

Input

Applicable to all Programs

<u>B. Tech.</u>

1. Request to change elective type.
2. Request to add/change/drop additional courses
3. Late add/drop/ registration etc.
4. Course dropping/adding
5. Registration and discontinuation of Minor courses
6. Branch Change.
7. Dual degree conversion (B.Tech- M.Tech/ B.Tech- Ph.D).
8. Student request for meeting with Associate Dean Academic (UG) or Dean Student Affairs.
9. Redemption of credits from ABC
10. Request for specific NEP electives
11. Others- Additional requests which can be added as and when needed

<u>M. Tech.</u>

1. Request to change in elective courses.
2. Request for dual degree conversion (M.Tech- Ph.D.)
3. Request for change of guide.
4. Request for meeting with Dean Academic Affairs /Associate Dean of Academic Affairs.
5. Redemption of credits from ABC
6. Others - Additional requests which can be added as and when needed

<u>M. Sc.</u>

1. Request to change in elective type.
2. Request for dual degree conversion (M. Sc.- Ph.D.)
3. Request for Dean of Academic Affairs appointment/Associate Dean Academic.

4. Redemption of credits from ABC
5. Others - Additional requests which can be added as and when needed

Ph. D.

1. Request to change in elective type.
2. Guide/ Co-guide consent form.
3. Guide Change form.
4. JRF to SRF conversion form
5. Open seminar form
6. Comprehensive exam
7. Ph.D. Thesis Submission
8. Ph. D. Financial Assistance.
9. Request for CSIR Contingency grant
10. CSIR Annual report form
11. Change of admission category
12. PSPC formation
13. Redemption of credits from ABC
14. Others - Additional requests which can be added as and when needed

Specific forms for student withdrawal from courses

Process

Students have to login into ERP and must make a request which he/she needs The request will be forwarded to the Department Assistant. Department will verify all the particulars if found correct the same will be forwarded to Academic section for approval

Output

1. The student should be able to view the status of his/her request, whether his request is approved/not approved along with mentioned remarks from the concerned authority.
2. If the request is approved, then necessary changes will be made in ERP Portal.

Interface

1. Course Instructor (Wherever applicable)
2. Faculty Advisor
3. PSPC committee members wherever applicable
4. HOD

Workflow Management

Student -> Executive Assistant Dept ->Dept Faculty Advisor/ Guide/ DPGC -> HOD -> Dealing Assistant (A.P) -> Assistant Registrar (A.P) -> Deputy Registrar (A.P) -> Dean (A.P)

Remarks

Reminder required- If not completed within 3 working days to the Dealing Assistant. Escalation channel with turnaround time

Sub Module 16: Student Casual Leave/ Medical leave- Request for PhD, MTech/MS by Research and M.SC students

Input

All Programs (For B Tech only Medical leave)

Process

Once the student makes a request, it will be forwarded to the Faculty Advisor/ Guide/Mentor. The competent authority may approve/disapprove the request made by the student. Provision of uploading supporting documents such as prescriptions, etc. should be there.

Output

1. Students, Faculty in charge and Academic Section should be able to view their Leave History.
2. Total no. of leaves eligible:
3. No. of Leaves availed:
4. No. of Leaves balance in leave account:

Interface

Guide /HOD

Workflow Management

1. Student ->Guide -> HOD
2. Dealing Assistant (A.P)

Sub Module 17 : Student Branch Change (Only for BTech Students)

Input

Student has to fill out an online application form specifying his/her 1st Preference and 2nd Preference

Process

1. Formula- Provision for fixing the criteria by academic office.
2. Criteria here means percentage of students who can come in and go out of the department based on class strength.
3. Courses fixed for calculating SGPA
4. SGPA of the candidates has to be calculated and should be arranged in descending order.
5. Based on SGPA and preference of the student the new branches should be allotted.
6. Email confirmation is to be sent to all the candidates who have been allocated a new branch.

Output

Reports such as:

1. List of students applied for branch change.
2. List of students who have been allotted new branch- Branch wise.

Workflow Management

Student -> Dealing Assistant -> Assistant Registrar -> Deputy Registrar

Sub Module 18 : Curriculum

Input

Curriculum approved by the Senate (uploaded by the Department and verified by Academic office)

Process

1. There should be a provision in ERP, where departments can upload their curriculum approved by the Senate.
2. Academic office will check that

3. ERP should allow students to register courses as per uploaded curriculum

Output

1. List of students who had not registered courses as per curriculum.
2. List of discrepancies, between the courses registered by student and department curriculum
3. Semester wise information of registered courses and students.
4. Complete courses registered by the student Vs respective curriculum applicable to the student

Interface

Executive Assistant of the Dept. concerned/ faculty advisor/Dept. HODs

Workflow Management

Dealing Assistant of the Department -> Faculty Advisor -> Dept. HODs -> Academic Section

Sub Module 19: Student Course Feedback

Input

1. Applicable to all Programs.
2. After the end of each semester, students must mandatorily fill out an online form and submit it within stipulated time.

Process

1. Students from his/her ERP login have to give feedback for all the registered courses at a specified time, failing which the student will not be able to view the grades.
2. Feedback is categorized based on the class size/strength

Output

Report on Feedback of Students- Faculty Wise and Semester Wise. - to be viewed by Dean of Faculty Affairs

Interface

Dean of faculty office

Workflow Management

Dean of Faculty Affairs will view the feedback received for every course offered in a particular semester

Remarks

The courses registered as 'Audit' should not be given access to give course feedback

Sub Module 20: Student No dues

Input

1. Online form to be filled by the student.
2. This is applicable to all the graduating students/ students who want to withdraw from any of the programs

Process

Students need to fill out an online form and forward it to relevant departments simultaneously for approval/ rejecting with comments. Reminders have to be sent to the section concerned if no dues is not cleared within stipulated time. Once the student receives the clearance from all the departments, the request has to go to DR(F&A), DR(A.P) and Registrar.

Student when submits the original Student ID Card and soft copy of thesis (for M

Tech PhD students) in the ERP module.

Faculty, lab assistants and staff members can enter the details of items borrowed by a student and the same should be used for sending no due requests.

Once he gets approval from the Registrar. ERP should generate a No-dues certificate> academic section

Output

Report- List of students who have dues department wise list of students who do not have any dues.

Interface

Admin, Estate, Guest House, Library, Stores, ME Workshop, Computer Centre, Sports, Hostel, Mess, R&D, F&A, and concerned department

Workflow Management

1. Student -> All Depts & Admin heads -> Deputy Registrar (F&A) -> Dy. Registrar(A.P) ->Registrar
2. Dealing Assistant (A.P)

Remarks

Reminders have to be sent to all the students who have not submitted No-dues certificates in the Academic Section

Sub Module 21: Student Convocation Registration

Input

Students need to fill out an online application form with necessary contact details.

Process

There should be a provision for the graduating students to register themselves so as to attend convocation.

Students may choose any available options such as.

1. Collect the degree certificate in person on the day of convocation.
2. Collect the degree certificate in absentia after the day of convocation.
3. Request to send degree certificate by post.

Output

Reports:

List of Students willing to attend convocation.

List of students who will collect their degree certificate in absentia.

List of students who want a degree certificate to be posted to their address.

The list of Convocation registered students should appear in the Computer Centre portal as Graduated List with grouping of Programs such as B.Tech, M.Tech etc.

Interface

With other sections to view

Workflow Management

Student -> Dealing Assistant(A.P) ->Section officer(A.P) -> Assistant Registrar(A.P) -> Deputy Registrar(A.P)

Sub Module 22: Faculty request - Grades upload and Grade Change

Input

Grades course wise and student wise.(In Excel Sheet) or through online interface after login

For grade change: Faculty has to fill out an online form with details of old grade, new grade and the reason for change.

Process

1. There should be a provision where faculty can upload an excel sheet having grades of all the students registered for a course within the deadline.
2. In case the course coordinator concerned has not submitted the grades within the deadline, He/She needs to get approval from Dean Academics.
3. For grade change : Faculty need to fill out an online form in which the old grade and the new grade for a course has to be mentioned. The reason for grade change has to be mentioned. Then it will be forwarded to HoD, DR(A.P), Dean(A.P) for approval.

Output

1. Confirmation email to course coordinator concerned and Academic Section once the grades are submitted/uploaded.
2. List of courses for which the grades have been awarded.
3. List of Courses for which the grades have not been awarded

Interface

Faculty Module- Course Instructor, Faculty Advisor and HoD.

Workflow Management

For grade change - Course Instructor -> HoD ->Deputy Registrar (A.P) -> Dean (A.P)

Academic section to view all reports

Remarks

Various reports based on the inputs and outputs required. Reminders for grade submission after course end date and exam

Sub Module 23: Faculty request- PSPC Committee Constitution and Progress Review Meetings

Input

Supervisor has to fill out an online form for PSPC constitution and schedule progress review presentations of students

Process

PSPC constitution:

PSPC committee has to be constituted within a specific time frame from the date of joining of research scholars. Guide has to select other faculty members (as per rules existing) to be a part of the PSPC committee then he has to forward it to DPGC convener and HOD for approval> Acad. office> DR> Dean academic affairs

PSPC Meeting:

At specific time intervals PSPC meetings should happen. The members should get alerts and facility to upload the recommendations of PSPC regularly

1. After specified duration a candidate has to appear before the PSPC committee for review of the Ph.D research progress at regular interval
2. If the review is found satisfactory/good/excellent the candidate is allowed to continue his/her research work.
3. If the review is found unsatisfactory the PSPC committee will recommend further proceedings.

Output

List of all such requests received. Various reports based on inputs received.

Report: Student wise PSPC members list to be generated

Interface

Dept. Executive Assistant, Faculty and HOD

Workflow Management

Faculty -> DPGC Convener -> HoD -> Dealing Assistant (A.P) -> Deputy Registrar (A.P) -> Dean (A.P)

Sub Module 24: Exit option for dual degree students

Input

MS+PhD/MTech+PhD dual degree student has to fill out an online form for quitting or exit option with MS/MTech degree

Process

Specified credits needed for exit with MS along with thesis submission

Output

List of all such requests received. Various reports based on inputs received

Interface

Department Assistant, Faculty and HOD. This will be reflected in the thesis defense module.

Workflow Management

Guide/Faculty -> HoD -> Dealing Assistant (A.P) ->Deputy Registrar (A.P) -> Dean (A.P)

Remarks

Various reports based on the inputs and outputs required

Sub Module 25: Withdrawal from the degree program

Sub Module 26 : Faculty Request- JRF to SRF Conversion

Input

Student has to fill online form

Process

1. Once the candidate has completed specified years then the guide will request for upgradation of the research scholar from JRF to SRF.
2. After filling the online form, students have to forward the request to Guide and then committee members, DPGC convener, HOD and external member for approval.
3. Once approved it will be forward to DR (A.P), Dean (A.P).

Output

List of all such requests received. Various reports based on inputs received

Interface

Dept. Executive Assistant, Faculty and HOD

Workflow Management

Guide/ Faculty -> DPGC Convener -> HoD ->Dealing Assistant (A.P) -> Deputy Registrar (A.P) - >Dean (A.P)

Remarks

Sub Module 27: Faculty request- Conduct of Open Seminar

Input

PhD student has to fill online form and then guide will upload necessary documents

Process

1. The guide in consultation with committee members should fix the date of open seminar (within specific time)
2. Guide has to upload certain specified documents, a copy of the draft synopsis, details of Journal/Conference publications, option form and final thesis after a stipulated time of open seminar.
3. Declaration of similarity index by Scholar, Guide PSPC members and HoD to be done online.
4. Entry of list of examiners etc.
5. Director/Chairman Senate will select examiners from the list provided.
6. After Open Seminar is conducted - Based on the presentation made by PhD student a form to be filled by guide and all the PSPC members which will be sent to academic office
7. Once the student submits thesis the candidate's name should be removed from the active student list of corresponding supervisor

Output

1. List of all such requests received.
2. Various reports based on inputs received

Interface

PSPC members, Dept. Executive Assistant, Guide/ Faculty and HOD

Workflow Management

1. Guide/Faculty -> PSPC members -> DPGC Convener -> HoD ->Dealing Assistant (A.P)->Deputy Registrar (A.P)-> Dean (A.P)

Sub Module 28: Faculty request- PhD Viva Examination

Input

Final thesis to be uploaded, date of exam and time entry to be made by Oral Exam Board (OEB) chairman

Report of final Viva made by OEB chairman in consultation with external examiners and members of OEB

Process

After the date of Viva a report has to be uploaded/ generated

Honorarium amount to be decided based on mode of exam

Facility to upload examiner bank details

Output

List of all such requests received.

1. Various reports based on inputs received.
2. Reminders to be sent to all stakeholders before conduct of Viva.
3. Viva report/recommendations to be approved online by all members and other administrative channels except external examiner, the report of external examiner has to be uploaded.
4. The recommendation made by an external examiner which has been incorporated in the thesis has to be certified online by Guide and PSPC members.
5. Viva completion certificate/ final provisional and original degree to be generated

Interface

Based on No dues, Final provisional and original degree Certificates to be generated

PSPC members, Dept. Executive Assistant, Guide/ Faculty and HoD

Accounts section to pay honorarium

Workflow Management

Guide/Faculty ->Doctoral committee members ->HoD -> Dealing Assistant (A.P) ->Deputy Registrar (A.P) ->Dean (A.P)

Sub Module 29: Faculty request- Summer Term and Winter Term

Input

Faculty has to fill the online form

Process

Faculty has to request if he intends to offer a course during winter term or summer term for backlog students.

Output

List of all such requests received. Various reports based on inputs received

Interface

Faculty, HOD ,

Workflow Management

Course Instructor -> DPGC Convener -> HOD -> Dealing Assistant -> Assistant Registrar (A.P) ->Deputy Registrar (A.P) -> Dean (A.P)

Remarks

Various reports based on the inputs and outputs required

Sub Module 30 : Academic Work Distribution

Input

Student roll no. Key words like- Grade Card, Bonafide, Scholarship
Delegation of duties

Process

Students will fill a form, based on the roll no. and type of request, the request should be directed to the concerned dealing assistant. If task/ role is not defined then request to be directed to DR,
Academic office then forwarded to the dealing assistant concerned

Output

List of duties assigned to all dealing assistants.

Interface

Student request module.

Workflow Management

1. Request to directly Dealing assistant concerned.
2. DR / Assistant Registrar (A.P) -> Dealing Assistant

Remarks

Various reports based on the inputs and outputs required

Sub Module 31: Academic Work Monitoring

Input

Academic calendar integration
Key words:
Student batch: eg. BTech 2017,2018, 2019 and 2020
Scholarship , Fellowship, New ID Card, Course Registration

Output

Real time work status

1. Task completed

2. Task ongoing
   Tasks which are yet to be completed.

Interface
To Dean Academic and DR Academic

Sub Module 32 : Academic Certificate and Grade Cards Status

Input
Data from different courses in ERP

Process
Dealing assistant (A.P) has to update the status of certificates issued to the student, the certificates which are printed, certificates which are yet to be printed.

Output
Reports batch wise and semester wise
1. Certificates issued.
2. Certificates pending
3. Id Card Issued status.

Various bonafide certificates issued status

Workflow Management
Dealing Assistants(A.P)->Assistant Registrar ->Deputy Registrar ->Dean Academic Affairs

Remarks
Various reports based on the inputs and outputs required

Sub Module 33 : Academic Inward/Outward/Dispatch

Input
Request received from Student/Staff/Faculty/Parents

Process
A unique no. has to be generated by system for all the requests which are received/made by academic section

Output
Daily reports of requests
1. Inward
2. Outward
3. Dispatch

Interface
All Modules available.

Workflow Management
Other Sections> Academic Section. Academic Section> Other Sections

Remarks
Various reports based on the inputs and outputs required

Sub Module 34 : Academic File Tracking

Input
Digital File Tracking Number.

Process
Each student file has to be given a unique file number. File tracking number

should be displayed

Output

Student Dept/ Batch /Roll Number wise Tracking System for all the files in Academic Section

Remarks

Various reports based on the inputs and outputs required

Sub Module 35: Academic Alumni

Input

1. Request for Duplicate Transcripts
2. Request to Post Certificates (Payment Gateway?)
3. Degree verification request

Process

After Students make a request, a dealing assistant concerned will do the needful.

Output

Email confirmation to the student.

Remarks

Various reports based on the inputs and outputs required

Sub Module 36: Time Table creation and Management

Input

Department Time table coordinator, Course Coordinator/Instructor, Segment, Slot, Prerequisite, Course Eligibility, Elective Type, Registration Type, Variable dates and classrooms with capacity

Process

1. Common Courses has to be finalized.
2. Based on common courses department wise time table to be finalized.

Output

Department wise, Program wise and Year wise time tables

Interface

Course Registration and Management

Workflow Management

Common Course Time table coordinator has to communicate with all departmental timetable coordinators to fix the common course slots and department wise timetable.

Sub Module 37: Academic Classroom reservation

Input

1. Department timetable.
2. Faculty requirement of Classroom

Process

1. Semester wise Timetable deployment facility should be available in ERP.
2. Academic Staff and Individual faculty should have permission to reserve/cancel a classroom as and when required.

Output

1. As per Time table (Semester Wise)
2. As and when required (Day wise)

Interface

Faculty Module

Workflow Management

Faculty/ Department Time Table committee member-> HOD->Dealing Assistant(A.P)-> Academic section

Remarks

Various reports based on the inputs and outputs required

Sub Module 38: Meeting rooms reservation

Input

Availability of meeting rooms/ conference halls, schedule of meetings, integration with calendar

Process

All faculty members and Admin Staff should have permission to reserve/cancel a meeting room/ classroom as and when required.

Output

As and when required (Day wise), reminders to guests/ invitees

Interface

Faculty, Admin Staff, Academic Staff

Workflow Management

Various reports based on the inputs and outputs required

Sub Module 39: Student Exchange Program

Input

IITI Students, Foreign students, names of universities, duration, program, financial assistance covered, courses taken

Process

Database and specific certificates (grades/ transcripts) issued. Grade mapping with foreign universities

Output

Various reports

Interface

IAR office

Workflow Management

Dealing Assistant -> Assistant Registrar ->Deputy Registrar -> Dean Academic Affairs

Sub Module 40: Senate, SUGC and SPGC Proceedings

Input

1. List of Members of Senate, SUGC and SPGC
2. List of Members of various standing committees of Senate, AAC, SUGC and SPGC

Process

Fixing dates for Senate, SUGC and SPGC meetings
Fixing dates for various sub-committee meetings periodically as per statutory/internal requirements
Agenda to be uploaded – This should be visible in the login of members.
Minutes of meetings to be uploaded - should be visible in login of members.

Issue office orders based on decisions taken by senate, SUGC, SPGC and its committees

Archive all records relating to senate, SUGC and SPGC and committee meetings

Output

Dates of Senate, SUGC, SPGC and Sub-Committee meetings held during an academic year

Database of agenda, minutes and office orders

Interface

Course Management sub-module

Faculty members, DUGC and DPGC members

Workflow Management

Dealing Assistant -> Assistant Registrar ->Deputy Registrar ->Dean Academic Affairs

Remarks

III

Purchase Module

Input

1. Purchase Indent Request from Indenter.
2. Yearly planning of procurement of assets.

Process

a) Direct Purchase(upto Rs. 25000/-): -

1. Confirmation of the fund availability from accounts section
2. Purchase of the item through GeM or other mode.
3. Receipt and verification of the item by the user.
4. Submission of bills in the store section after approval from the HoD.
5. Stock entry in store ledger.
6. Issue of item to the user.
7. Forwarding the bills to the accounts section for payment.

b) Purchase by GeM/Local Purchase Committee (LPC) (Indent value above Rs. 25000/- upto Rs. 2,50,000/-)

1. Indenter raises the indent with technical specifications.
2. Indent will be forwarded to the recommending authority and approving authority for approval.
3. After approval the indent will be forwarded to MMS for verification by Section Officer/Asst. Registrar(MMS).
4. Indent will be forwarded to Accounts/R&D Section for commitment of funds/budget from Institute/Department/Project funds.
5. Forwarding of indent to purchase section again for further process
6. Confirm the availability of the item on GeM based on given technical specifications:
   A. If yes then forward the shortlisted item to the user for recommendation
   B. If no then forward the selected quote to local purchase committee(formed by the HoD/indent approving authority) for recommendation in the specified format

C. If the item is proprietary and proprietary, the article certificate is approved by the indentor and approving authority is required in the specified format.

7. Sanction proposal/Note is prepared and verified by the Section Officer/Asst. Registrar based on terms & conditions of the proposal
8. Sanction proposal is forwarded to the indenter and HoD/PI for recommendation/approval
9. The proposal is forwarded for audit.
10. The proposal is forwarded to Registrar/Dean (Admin)/Dean(R&D)/Director as per Delegation of Financial Powers for Approval and Sanction of Expenditure
11. Issue of Purchase/work order
12. Receipt of the Material
13. Inspection of Goods (Quantity, Quality, Features, Functions etc.) by the User
14. Approval of bill by the indent approving authority.
15. Submission of bills in Store for stock certification and entry as per GFR 2017
16. Store section will generate QR code for the asset.
17. Bill is forwarded to the purchase section for verification against the terms and condition of purchase order.
18. Forwarding the bill to accounts section for payment

c) Procurement via GeM/CPPP (Indent Value above Rs. 2,50,000/- upto Rs 5,00,000/-)

1. Indenter raises the indent with technical specifications.
2. Indent will be forwarded to the recommending authority and approving authority for approval.
3. After approval the indent will be forwarded to MMS for verification by Section Officer/Asst. Registrar(MMS).
4. Indent will be forwarded to Accounts/R&D Section for commitment of funds/Budget from Institute/Department/Project funds.
5. Forwarding of indent to purchase section again for further process
6. Confirm the availability of the item on GeM based on given technical specifications:
   A. If yes then forward the shortlisted item to the user for recommendation
   B. If not then the tender will be floated online on CPPP and published on the institute's website after approval from the user and the Registrar.
7. After obtaining online bids, technical evaluation will be done by the technical committee formed by the indent approving authority/HoD.
8. Financial comparative statement is prepared to ascertain the Lowest Responsive Bid (L1 offer)
9. The Purchase Committee will submit their recommendations on the comparative statement.
10. Sanction proposal/Note is prepared and verified by Section Officer/Asst. Registrar based on terms & conditions of the proposal
11. Sanction proposal is forwarded to the Indenter and HoD/PI for recommendation and approval
12. The proposal is forwarded to the audit section.
13. The proposal is forwarded to Registrar/Dean (Admin)/Dean(R&D)/Director as per Delegation of Financial Powers for Approval and Sanction of Expenditure
14. Issue of Purchase/work order
15. Refund of EMD/Bid Security of bidders other than L1.
16. Inspection of Goods (Quantity, Quality, Features, Functions etc.) by the User after receiving the material
17. Approval of bill by the indent approving authority.

18. Submission of bills in Store for stock certification and entry as per GFR 2017
19. Store section will generate QR code for the asset.
20. Bill is forwarded to the purchase section for verification against the terms and condition of purchase order.
21. Forward the bill to accounts section for payment

d) Procurement Above 5 Lakh (GeM & CPPP)

1. Indenter raises the indent with technical specifications.
2. Indent will be forwarded to the recommending authority and approving authority for approval.
3. Indent will be forwarded to MMS for verification by Section Officer/Asst. Registrar(MMS).
4. Indent will be forwarded to Accounts/R&D Section for commitment of funds/Budget from Institute/Department/Project funds.
5. Forwarding of indent to purchase section again for further process
6. If the Item indigenous tender will be floated on Gem and if it is imported, then tender will be floated on CPPP after receipt of approval for global tender enquiry.
7. Tender will also be published on website and news paper based on its value.
8. Prebid meeting and demonstration is conducted as per the scheduled given in the tender document.
9. Publication of prebid meeting report and demonstration report.
10. After obtaining online bids, technical evaluation will be done by the technical committee formed by the indent approving authority/HoD.
11. Financial Comparative statement is prepared to ascertain the Lowest Responsive Bid (L1 offer)
12. The Purchase Committee will submit their recommendations on the comparative statement.
13. Sanction proposal/Note is prepared and verified by Section Officer/Asst. Registrar based on terms & conditions of the proposal
14. Sanction proposal is forwarded to the Indenter and HoD/PI for recommendation and approval
15. The proposal is forwarded to the audit section.
16. The proposal is forwarded to Registrar/Dean (Admin)/Dean(R&D)/Director as per Delegation of Financial Powers for Approval and Sanction of Expenditure
17. Issue of Purchase/work order
18. Refund of EMD/Bid Security
19. Inspection of Goods (Quantity, Quality, Features, Functions etc.) by the User after receiving the material
20. Approval of bill by the indent approving authority.
21. Submission of bills in Store for stock certification and entry as per GFR 2017
22. Store section will generate QR code for the asset.
23. Bill is forwarded to the purchase section for verification against the terms and condition of purchase order.
24. Forwarding the bill to accounts section for payment

Output

1. Release of Purchase Order.
2. Delivery & Installation of Material & Payment.
3. Physical Verification of Assets.
4. Creation of QR for the asset

Interface

1. **Purchase Indent: -**

a. Indenter raises the indent.
b. Upload the Specification of the Tender.
c. Yearly planning of procurement of assets

2. **Preparation of Purchase Order: -**
   a. Purchase order No & date.
   b. Supplier Address.
   c. Payment Details.
   d. Item Description.
   e. Forward to Supplier copy Indenter, Account RD Section & Office copy
3. **Store section**
   A. Inventory Management System:- (Category of Assets)
   a. Consumable
   b. Non-consumable
      - LSE: Lab and Scientific Equipment
      - FF: Furniture & Fixtures
      - MV: Motor Vehicles
      - OFE: Office Equipment
      - COMPH: Computer Hardware
      - COMPS: Computer Software
      - EAE: Electrical and Electronics
      - MISC: Miscellaneous

   B. Stock entry
   a. Make, Model, Serial No. of the Equipment
   b. Location of the item.
   c. Remarks

   C. Generation of Returnable and non returnable gate pass for moving any asset in or out of the campus.
   D. QR code generation
   E. Disposal of scrap material
   F. Write-Off Asst
   G. Stationary and consumable items.

Workflow Management

- Purchase Indent → Funds Commitment → Mode of purchase → Tender floating→ Receipt of Bids → Comparative Statement & Evaluation(If any) → Recommendation of user faculty/Purchase Committee → Verification of File in Store → Approval/Sanction of Competent Authority → Award of Contract/Purchase order
- Material Management → Material receipt Entry → Acceptance by Indenter → Entry in Inventory → Consumable /Non Consumable Asset → QR code Generation → PIR Register
- Invoice Processing → Processing of Invoice to Accounts

Remarks

This is basic information; further details will be given based on the rules and policy at the time of implementation.

R&D Section

The following should be taken care while designing the R&D section module.

- The module should have the ability to generate different types of reports which can be customized and drilled down to granular level.
- It should generate alerts based on calendar and activities. Alerts can be sent using different means such as through online portal when user logs in, via email, via SMS, etc. For example, extension of the project staff appointment, filing of annual immovable property return, issuance of office memorandum (OM), etc.
- Escalation chain with turnaround time for all activities to be integrated along with Auto submission facility wherever possible/applicable.
- This module should be flexible enough to accommodate changes in workflow and inputs.
- System Validation checks to be enabled wherever needed.
- All kinds of data analytics statistical analytics including graphical representation features should be enabled using historical and current data.
- For all sub-modules provision for exceptional handling must be provided with approvals from different channels.
- Existing data with the R & D section office must be integrated with the new ERP system.

Research and Development Portal Specifications

1. Sub-module for R&D Office Staff and Project Personnel

Input: Staff or project personnel selection documents

Process: Upload files, such as .doc, .pdf, etc, Generating notes for approval, Sending requests to other departments, Obtaining approvals from concerned authority,

Workflow Management: Data to be entered after R&D office staff/JRF/SRF/RA selection. Data to be accessible to AR R&D, Manager R&D, PI of project.

Interface:

1. Holiday list management,
2. Leave Management - CL,
3. Vacation Leave (Faculty), EL, HPL (for staff), Commuted Leave, Maternity Leave, Paternity Leave, Child Care Leave, Extraordinary Leave, Leave Not Due, Sabbatical Leave, Quarantine Leave, Study Leave.

4. Joining Report,
5. HRA processing,
6. Annual Increment,
7. Periodic DA hike,
8. Lien,
9. Placement/Absorption/Movement/Promotions, Advance processing for LTC, Medical, HBA etc.,
10. Loan processing,
11. Income tax declaration,
12. Annual immovable property return,
13. NOC,
14. Applying for outside job/Attending interview,
15. Pursue higher studies,
16. Apply for new/renewal of Passport/Visa,
17. Experience/Service certificate,
18. Additional Responsibilities for e.g. Dean/Associate Dean/ HoD etc.,
19. Incentives,
20. Acquiring higher qualification

Output:

1. Issue of No Objection certificate for different purposes as per the input,
2. Issue of Orders for different purposes as per the Input Generation of reports related to the provided data,

2. HR Module for Project Personnel and Staff:

Input: Staff or project personnel selection documents

Process:

Upload files: .doc, .pdf, etc,
Generating notes for approval,
Sending requests to other departments,
Obtaining approvals from concerned authority,

Workflow Management:

Data to be entered for R&D office staff/JRF/SRF/RA selection.
Data to be accessible to AR R&D, Manager R&D, PI of project.

Output/Interface:

1. Advertisement for the recruitment of the project staff JRF/SRF/RA/PMRF etc.
2. Constitution of Selection Panel.
3. Selection Panel Report
4. Offer letter to the successful candidate.
5. Offer letter acceptance
6. Joining Report
7. Office Memorandum (OM)

8. Accommodation for the project staff
9. Salary
10. Leaves
11. Extension
12. Conversion
13. Resignation
14. No Dues
15. Relieving letter
16. Experience letter

R&D Project Module for PIs:

Input: Project PI will upload documents or send requests related to R&D projects.

Process:

1. After the Project gets sanctioned, R&D section creates the Project with all the heads specified by the funding Agency.

2. The receipt will be entered in respective Projects.

3. There should be a provision in the ERP to commit the funds for all the purchases/ advances from different Projects under different heads.

4. There should also be a provision to make the payments against the commitments.

5. There should be a provision in ERP for HRMS module for Project staff which includes commitment, offer, extension, payments, completion, relieving and termination and experience certificate and NOC etc.

6. Integration with PFMS website.

7. Retrieval of expenditures made from PFMS website for automatic uploading expenditure in ERP Module.

8. Provision for raising Invoices in connection with Sponsored & Consultancy Projects.
Automatic ledger of Invoices for generation of statement every month in the GST website.

9. Provision for maintaining Ledgers of SRC, DDF, RDF, Fixed Deposits based on the input data.

10. Automatic statutory deductions of TDS GST, TDS (with defined percentage)

and provision of ledger every month in respect of payments, salaries and honorariums.

11. Provision for generation of payment vouchers after entering the data in the ERP module.

12. Provision to include UTR No. for the transactions against each payment in the ERP Module.

13. Email / SMS alerts to the beneficiaries / vendors after making the payments.

14. Provision for making settlement of advances in ERP.

15. Provision for fund transfer from Projects to RDF.

16. Provision for fund distribution among various available projects and its sub-heads from the uploaded bank statement's receipts.

17. All the above modules/ interface/ fields should be flexible for modification / alteration / retrenching / addition and for easy integration with other sections data viz. purchase, stores, academic modules.

Workflow Management: Uploading documents -> Entry of Details -> generate notes for approval (note-sheet) ->Obtaining approval from the competent authority(ies) -> Generate orders for issue.

Output/Interface:

1) **Technology Transfer ->** Available Technologies -> Licensing Process.
2) **Patents -> Patent Details**

Dropdown Menus:

Academic Year,
Patent Status,
Faculty Member,
Select Department (Computer Science and Engineering, Electrical Engineering, Mechanical Engineering, Metallurgical and Material Science Engineering, Civil Engineering, BSBE, Physics, Chemistry, Mathematics, HSS, DAASE)

List of R&D Patents (Sl, no, Patent Title, Status)

3) Projects (Sponsored Projects, Consultancy Projects)

R&D Sponsored Projects: Dropdown Menu for Search Components: Funding Agency (AICTE, DRDO, DAE, CSIR,....),
Year (2009-2010, 2010-2011,...),
Faculty Member (Names of Faculty Members),
Select Department (Computer Science and Engineering, Electrical Engineering,...),
Status (Ongoing, Completed, Transferred, Closed), Reset Button

Consultancy Projects (Industrial Consultancies carried out from IIT Indore):

Dropdown Menu for Search Components:

CSR Opportunities, Expression of Interest (EoI) forms.

Year (2009-2010, 2010-2011,...).

Faculty Member (Names of Faculty Members),
Select Department (Computer Science and Engineering, Electrical Engineering,...)

4) **Publications**

Publication Details: Dropdown menu for
Publication Type (Journal, Conference, Book, Book Chapter),
Academic Year (2009-2010, 2010-2011,,...),
Faculty Member (Dropdown menu for names of faculty members)

5) **Research Initiatives**:
PRIUS,
CEP (List of CEPs conducted until now),
IPR (List of Technologies/Innovations available at IIT Indore for commercialization purpose),
Industrial Research and Consultancy,
PhD Scholars and Research Staff,
MoU,
Open Day,
Visitor under Different Schemes,
YFRSG Scheme,
Events (Conferences, Workshops),
Quick Links (R&D Forms, Pay Fees, Policies and Guideline, Tracker),
Navigation (IIT Indore, Webmail, Faculty Login, Copyright Registration)

Faculty Portal Login:

Dashboard.

Add/Update Patent (Required entries): Title, All Inventors, Country (where patent has been filed),

Application No., Patent Filing Date (Year, Month, Day), Approval Date (Year, Month, Day),
Patent Status, Patent Number, Online link, Department of the author at the time of publication.

List of Patents (Sl. No., Patent Details, Edit)

Add/Update project:
Project Ref. No.,
Project Title,
Start Details: (Month Year),

End Details: (Month, Year),
Funding Agency (AICTE, DRDO, DST, CSIR, DBT, SERB, ...),
Status (Completed, Ongoing),
Sanctioned Letter (Upload Letter),
Details Principal Investigator(Name, Designation, Institute, Department (CSE, EE,...)),
Details,
Other PIs,
Details Other Co-PIs,
Collaborative Partners,
Amount/Funding.

List of Projects: Project Details, Google Sheet, Edit Link

Add/Update Consultancy: Project Ref. No., Project Title, Financial Year, Consulting Agency, GST No., Consultant, Department (CSE, EE,...), Amount

List of Consultancy: Project Details, Edit Link

Add/Update Publications:
Type (Journal, Conference, Book, Book Chapter), Title, Author Names, Journal Name, Year of Publication (Month),
Accepted/In Press (Volume No, Page No./Article No., DoI, Online link, Department of the author at the time of publication)
List of Publications (Publication Details).
Add/Update Conference (Theme/Title)

Conference List,
Add/Update Workshop,
Workshop List,
Add/Update Short Term Course,
Course List,
Circulars.

Remarks:
1. Workflow & interface should be flexible for customization at any stage.
2. Format of Reports/OMs should be flexible for customization at any stage.

R&D-MMS Module:
Replicate the main MMS module having provision for inclusion of the project details.

Separate Interface required for provision for:

1) Short Term Courses,
2) Workshops organized through R&D Office.

End of Document~

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