

# Islamic University of Science and Technology

## Awantipora, Kashmir



*A project synopsis on*

### ***Research Scholar Management System***

Submitted in partial fulfillment of the requirements for award of the degree of

### **Master of Computer Applications**

Under the supervision of

**Dr. Zubair Jeelani**

*in*

Department of Computer Science,  
School of Engineering & Technology,  
Islamic University of Science & Technology

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## Group Members

Name	Roll Number
Mohammad Usman Shah	MCA-23-11
Shameem Ahmad Malik	MCA-23-04
Umar Farooq Wagay	MCA-23-02

### Approval / Recommendation Remarks

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**Supervisor**

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## **1. Summary of proposed work**

This project proposes the development of a comprehensive full-stack web portal designed to automate and digitize the end-to-end research workflow for Ph.D. scholars, in alignment with the official Ph.D. ordinance of the university. The existing manual and paper-based processes—such as maintaining dynamic scholar records, managing supervisor details and their available vacancies, verifying supervisor eligibility and Board of Research Studies (BORS) approvals, as well as coordinating departmental-level approvals through DRC and RPAC—are often prone to errors, inefficiencies, and a lack of transparency. The proposed portal will serve as an integrated platform to streamline these workflows, facilitating seamless collaboration among research scholars, supervisors, and academic departments. By enabling real-time information access and process monitoring, the system will not only ensure procedural compliance but also enhance accountability and progress tracking throughout the Ph.D. lifecycle.

## **2. Objectives**

The primary objective of this project is to design and implement an integrated full-stack web-based portal to streamline, digitize, and manage the Ph.D. research lifecycle in accordance with the university's Ph.D. ordinance. The system aims to replace the current manual, paper-based workflows with a transparent, efficient, and centralized digital platform that supports scholars, supervisors, departmental committees, and administrative bodies throughout the research journey. The specific objectives of the proposal are:

### **1. Scholar Data Management**

Develop a data module to maintain detailed scholar profiles including admission details, coursework status, research objectives, publications, and progress updates. The system will allow real-time updates to reflect changes over time, ensuring accurate tracking and reporting.

### **2. Supervisor Data and Vacancy Management**

Maintain a centralized database of approved Ph.D. supervisors, including their academic credentials, research interests, current supervisory load, and eligibility status. The portal will automatically track and update available supervisory vacancies based on maximum allowed limits and ongoing scholar assignments.

### **3. BORS Approval Management**

Implement a module to support the verification of supervisor eligibility and facilitate approvals through the Board of Research Studies (BORS). This includes workflows for submission, review, and approval of supervisor and scholar registrations, ensuring compliance

with institutional and regulatory requirements.

#### **4. RPAC Meeting Scheduling and Tracking**

Provide tools for scheduling and documenting Research Progress Assessment Committee (RPAC) meetings. The system will enable scholars and supervisors to collaboratively plan RPAC reviews, record discussions on research objectives and challenges, and archive progress reports that are traditionally maintained manually, thus ensuring consistent and accessible records.

#### **5. DRC Meeting Management and Tracking**

Digitize the processes related to Departmental Research Committee (DRC) meetings, including proposal submission, meeting scheduling, agenda setting, and outcome documentation. The system will offer dashboards for committee members to review submissions and decisions, enhancing accountability and transparency.

### **3. Problem Statement**

The current Ph.D. research management process at the university is largely manual, fragmented, and paper-based, leading to inefficiencies, delays, and a lack of transparency. Key activities—such as maintaining dynamic scholar records, tracking supervisor eligibility and availability, managing approvals through BORS and DRC, and scheduling RPAC meetings—are handled through disparate systems or physical documentation. This not only increases the risk of errors and miscommunication but also makes it difficult to monitor scholar progress and ensure procedural compliance. The absence of a centralized digital platform hinders seamless collaboration among scholars, supervisors, and administrative bodies, ultimately affecting the quality and timeliness of research oversight. There is a critical need for an integrated web-based system to streamline these workflows, enhance accountability, and support real-time decision-making throughout the Ph.D. lifecycle..

### **4. Importance / Justification of Work**

The successful completion of a Ph.D. program requires rigorous academic oversight, timely communication, and transparent documentation across various stakeholders including scholars, supervisors, departmental committees, and administrative bodies. However, the current reliance on manual and paper-based systems significantly impedes the efficiency, accuracy, and accountability of these processes. Delays in approvals, misplaced records, inconsistent tracking of scholar progress, and lack of real-time communication are common challenges that adversely affect both the scholar experience and institutional governance.

This project addresses these critical issues by proposing a centralized, full-stack web portal

that aligns with the university's official Ph.D. ordinance. The portal will digitize and automate key research workflows such as scholar data management, supervisor allotment, BORS and DRC approvals, and RPAC evaluations. By doing so, the system will not only streamline operations and reduce administrative overhead but also ensure regulatory compliance, enhance decision-making, and foster a more transparent and supportive research environment.

Moreover, the proposed solution will serve as a scalable digital infrastructure that can be extended or customized for other research programs and other departments within the institution in the future. It reflects a forward-looking approach to academic administration, leveraging technology to improve quality, accountability, and user satisfaction in higher education research management.

## 5. Software and Hardware Requirements

### Software Requirements

Component	Technology
Frontend	React.js, Tailwind CSS
Backend	Node.js, Express.js
Database	MongoDB
Authentication	JSON Web Tokens (JWT)
API Integration	RTK Query
Storage (optional)	Firebase / AWS S3 (for files)
Development Tools	VS Code, Postman, Git
Operating System	Windows / Linux
Deployment	Vercel / Render / Heroku

### Hardware Requirements

Component	Technology
Processor	Intel i5 or above
Main Memory	8 GB or above
Secondary Storage Space	20 GB or above ( <i>for dev setup</i> )
Network/ Internet	Internet access for API/ data

## 6. Conclusion

This proposal presents a strategic initiative to transform the management of Ph.D. research processes through the development of an integrated, full-stack web portal. By digitizing key workflows—ranging from scholar and supervisor data management to committee approvals and progress evaluations—the proposed system aims to address longstanding challenges associated with manual operations, such as inefficiency, lack of transparency, and fragmented communication.

The portal will not only enhance administrative efficiency and procedural compliance but also foster a collaborative and supportive environment for scholars, supervisors, and institutional committees. With its potential to improve real-time tracking, accountability, and data accessibility, the system represents a significant step toward the digital transformation of academic research governance.

Overall, this project aligns with the broader goals of academic excellence, institutional modernization, and research quality enhancement, and stands to benefit all stakeholders involved in the Ph.D. journey.

## 7. References

- [1] Ordinance for Award of Ph.D. Degree (Revised – 2023). Available at: <https://iust.ac.in/research-view-frame.aspx?deptcode=DGpK/7PnY4c09cP7ML1wdg==&Id=6026> [Retrieved on 12-05-2025]