

Project report on

“Digitalization of the MCA Department”

A Dissertation submitted in partial fulfilment of the requirement for the award of degree

MASTER OF COMPUTER APPLICATIONS

OF

VISVESVARAYA TECHNOLOGICAL UNIVERSITY



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July-2024

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CERTIFICATE

This is to certify that the dissertation titled "**Digitalization of the MCA Department**" submitted in partial fulfilment of the requirements for the degree "**Master of Computer Applications**" by Visvesvaraya Technological University is based on an original study and is record of bona fide work carried out by **Shashank Katti** bearing university registration number **1BY22MC047** during the period **April 2024 to July 2024** under our supervision and guidance and that no part of the report has been submitted for the award of any other Degree/ Diploma/ Fellowship or similar title or prizes. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Master of Computer Applications Degree.

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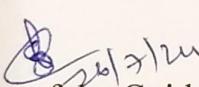
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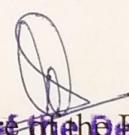
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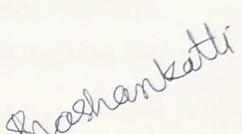
This is to certify that **Mr.Shashank Katti** bearing **1BY22MC047** has successfully completed the **Project Work (22MCA403)** titled **Digitalization of the MCA Department at R&D Centre, Department of MCA, BMS Institute of Technology and Management, Bengaluru** under the guidance of **Dr.Shivakumara T.** Assistant Professor, Department of MCA during the period from **April to July-2024**.


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DECLARATION

I Shashank Katti, student of MCA, BMS Institute of Technology and Management, bearing USN 1BY22MC047 hereby declared that project entitled "**Digitalization of the MCA Department**" has been carried out by me under the supervision of guide Dr. Shivakumara T and submitted in the partial fulfilment of the requirements for the award of Degree of Master of Computer Applications by the Visvesvaraya Technological University during the academic year 2023-24. This report has not been submitted to any other Organization/University for any award of degree or certificate.

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Shashank Katti

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VISION

To develop quality professionals in Computer Applications who can provide sustainable solutions to the societal and industrial needs.

MISSION

Facilitate effective learning environment through quality education, state-of-the-art facilities, and orientation towards research and entrepreneurial skills.

Program Educational Objectives (PEOs)

PEO 1: Develop innovative IT applications to meet industrial and societal needs.

PEO 2: Adapt themselves to changing IT requirements through life-long learning.

PEO 3: Exhibit leadership skills and advance in their chosen career.

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Program Outcomes (POs)

PO 1: Apply knowledge of computing fundamentals, computing specialization, mathematics and domain knowledge to provide IT solutions.

PO 2: Identify, analyze and solve IT problems using fundamental principles of mathematics and computing sciences.

PO 3: Design, Develop and evaluate software solutions to meet societal and environmental concerns.

PO 4: Conduct investigations of complex problems using research-based knowledge and methods to provide valid conclusions.

PO 5: Select and apply appropriate techniques and modern tools for complex computing activities.

PO 6: Understand professional ethics, cyber regulations and responsibilities.

PO 7: Involve in life-long learning for continual development as an IT professional.

PO 8: Apply and demonstrate computing and management principles to manage projects in multidisciplinary environments by involving in different roles.

PO 9: Comprehend & write effective reports and make quality presentations.

PO 10: Understand the impact of IT solutions on socio-environmental issues.

PO 11: Work collaboratively as a member or leader in multidisciplinary teams.

PO 12: Identify potential business opportunities and innovate to create value for the society and seize that opportunity.

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Course Outcomes (COs)

CO 1: Review the existing literature to identify and formulate the problem in contemporary technologies/ issues related to society/environment which leads to development of IT solution.

CO 2: Analyze the requirements and prepare Software requirement specifications (SRS) document as per IEEE format in consistency with the problem defined.

CO 3: Create models that are consistent with the requirements specified in the SRS.

CO 4: Develop the solution by applying appropriate techniques, software engineering and management principles and modern tools to meet the requirements either as an individual or by involving in team.

CO 5: Verify & validate the data and results to arrive at valid conclusions and communicate the work done effectively in terms of presentations, writing reports and research article as per the format given.

CO 6: Follow ethical principles in all stages of project work by avoiding plagiarism.

CO 7: Articulate the impact of IT solutions developed in the project work with respect to societal, environmental and industrial issues at large.

ABSTRACT

The digitalization of the MCA Department involves the comprehensive integration of hardware and software systems to enhance operational efficiency and user experience. This initiative necessitates the deployment of standard desktops or laptops equipped with modern multicore processors and sufficient RAM, compatible with major operating systems and web browsers. These hardware components ensure a stable platform for accessing the newly developed application, facilitating seamless interaction and data management within the department. On the software front, the project employs a robust stack of technologies tailored to meet the complex demands of Digitalization of MCA Departments. HTML5 provides a structured foundation for organizing Digitalization -related content, while CSS3 enhances the portal's visual appeal and user interface. JavaScript augments frontend functionalities with dynamic features, ensuring real-time updates and interactive user experiences. Backend operations are powered by Django, leveraging Python's capabilities for rapid development and security. A SQLITE database management system ensures reliable storage and retrieval of critical Digitalization data, maintaining transactional integrity and scalability for future needs. Overall, the digitalization effort aims to create a sophisticated Digitalization of MCA Department that not only meets current departmental requirements but also anticipates future scalability and security needs and faster a responsive environment for both staff and students within the MCA Department.

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7.4 Test cases

The test cases section is designed to validate the system's functionality and performance. It includes various test cases, their descriptions, and expected outcomes. This section also highlights any potential bugs or issues found during testing and provides recommendations for improvement.

Frontend technologies like HTML, CSS, and JavaScript play a significant role in creating visually appealing interfaces for both desktop and mobile devices. CSS Grid and Flexbox are particularly useful for layout management, while CSS-in-JS libraries like styled-components and emotion help maintain style consistency across components.

JavaScript provides a structured approach to content presentation, facilitating reusability and maintainability across different devices and screen sizes. CSS-in-JS enhances the aesthetics of the frontend's digital platforms, ensuring a cohesive and engaging user interface through advanced styling and layout techniques. JavaScript, meanwhile, enables dynamic interactions and real-time updates, enriching user engagement and functionality.

Backend technologies play a pivotal role in supporting the robust data processing and storage requirements. Python, renowned for its versatility and readability, serves as the primary programming language underpinning backend development.

Django, a powerful Python framework, provides the necessary tools for rapid application development and secure data. Furthermore, the optimization of administrative processes will enhance TCA Department's accountability, reduce paperwork, and improve operational efficiency.