

SHRI MADHWA VADIRAJA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(A Unit of Shri Sode Vadiraja Mutt Education Trust®, Udupi)

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Vishwothama Nagar, Bantakal - 574115, Udupi District, Karnataka.

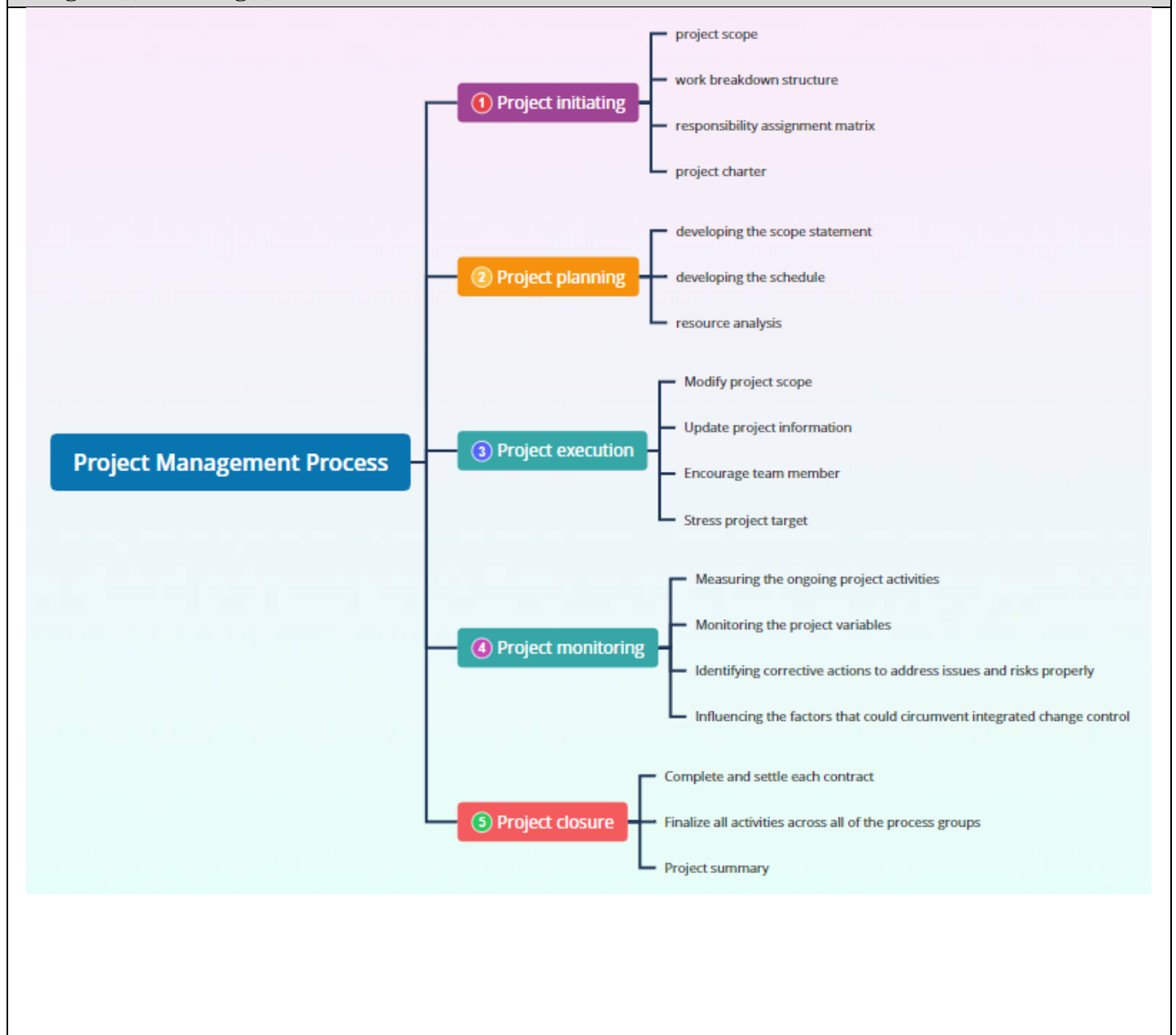


DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT PROPOSAL	
PROJECT GROUP NO:26	ACADEMIC YEAR: 2024-25
A. Proposed Title of the Project	
NBAcademix [NBA Student Information Management System (NSIMS)]	
B. Introduction	
<p>The NBA Student Information Management System (NSIMS) is a comprehensive web-based platform designed to streamline the collection, management, and analysis of student data for National Board of Accreditation (NBA) requirements. This system will provide a centralized repository for various aspects of student information, including academic performance, placements, higher education pursuits, entrepreneurial ventures, and extracurricular achievements. By digitalizing these processes, NSIMS aims to enhance data accuracy, accessibility, and reporting capabilities for NBA accreditation purposes.</p>	
C. Literature Review	
<p>1. Django Web Development Framework: Powering the Modern Web by Songtao Chen ,Shahed Ahmmed (2020)</p> <p>2. Django as secure web-framework in practice by Kulanda Duisebekova, Roman Khabirov (2021)</p> <p>3. Full-stack web development using Django REST framework and React by Joel Vainikka (2018)</p> <p>4. Management of Django Web Development in Python by Ashish Chandiramani (2021)</p> <p>5. Implementation of Result Analysis Automation Tool using Python Django Framework by B. Gowtham Kumar (2021)</p>	
D. Objectives	
<p>1. Develop a user-friendly web interface for data entry, retrieval, and management of NBA-required student information.</p> <p>2. Implement modules for result analysis, placement details, higher studies tracking, and entrepreneurship data.</p> <p>3. Create a system for managing student performance records, participation certificates, and competition wins.</p> <p>4. Design modules for maintaining admission lists, academic year student lists, and GATE qualification records.</p> <p>5. Incorporate additional features for faculty information and alumni details management.</p> <p>6. Implement data visualization and reporting tools for easy analysis of student data.</p> <p>7. Ensure data security and privacy compliance in line with educational data protection standards.</p>	
E. Workplace	Address of Other Institute / Industry (if any):
College / Other Institute / Industry	Shri Madhwa Vadiraja Institute of Technology & Management is an engineering college located in Bantakal, near the temple town Udupi
F. Requirement Details	
1. Hardware	<ul style="list-style-type: none">• Processor: Intel i5 or AMD Ryzen 5 and above• RAM: 8 GB minimum (16 GB recommended for faster performance)• Storage: SSD 256 GB minimum• Graphics: Integrated (or dedicated GPU for faster processing, though not essential)• A dedicated or cloud server (e.g., AWS) to host the website.

2. Software	<ul style="list-style-type: none"> • Development: Windows 10/11 • IDE: Visual Studio Code, • Version Control: Git with GitHub/ for code management and collaboration
3. Skill sets	<ul style="list-style-type: none"> • Frontend Development • Backend Development • Database Management • Payment Gateway Integration • Version Control • Security • Testing and Debugging • UI/UX design and User Experience
4. Others	<ul style="list-style-type: none"> • Access to NBA documentation and guidelines • Collaboration tools • Testing frameworks and Deployment Tools

G. Figure(s)/Drawing(s)



H. Methodology

1. Requirement Analysis:

The first step is to gather detailed requirements from the college administration and ensure that the application aligns with the guidelines provided by the National Board of Accreditation (NBA). This involves conducting interviews with stakeholders such as lecturers, administrators, and accreditation officers to understand their specific needs. The goal is to identify key performance indicators (KPIs), metrics, and reports required by the NBA, which may include student performance tracking, program outcome analysis, and accreditation compliance. Functional requirements like result entry, grade analysis, and report generation must be clarified, while non-functional requirements such as performance, security, and user-friendliness are defined.

2. System Design:

The system design phase involves creating a comprehensive architecture for the web application. This typically includes defining a 3-tier architecture consisting of the frontend, backend, and database layers. Technologies such as Django for the backend, HTML , CSS for the frontend, and SQLite for the database can be selected at this stage. Next, the database schema is designed to store key information such as student details, course outcomes, program outcomes, and results. Proper relations between tables should be established to handle data efficiently. The user interface (UI) is designed with mockups and wireframes, ensuring it's intuitive for data entry and offers powerful data visualizations and reports for users. Attention should be given to creating responsive and accessible designs for various devices.

3. Development:

Once the design is complete, the development phase begins by setting up the development environment with necessary tools, frameworks, and libraries like Django and Bootstrap. A version control system like GitHub or GitLab is implemented for tracking progress and collaboration. Backend development focuses on creating the necessary Django models for data management, including models for students, results, and courses. Business logic is added to calculate metrics for NBA accreditation. Frontend development involves creating interactive forms for data entry. The system should generate reports such as grade distributions, average student performance, and compliance against NBA criteria.

5. Deployment:

After successful testing, the application is deployed to the college's server or a cloud platform like AWS or Azure. Any existing data, such as historical student results, is migrated to the new system using data import/export tools to avoid data loss. Finally, monitoring tools such as Google Analytics or server logs are set up to track system performance and detect any issues that arise during operation.

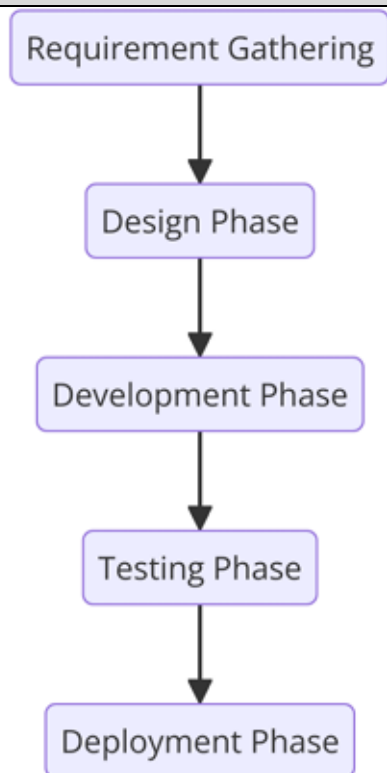
6. Documentation:

Clear and detailed documentation is critical for both users and developers. A user manual is prepared to guide administrators, lecturers, and other staff through the system. This manual includes sections on data entry, report generation, and using the system's analysis tools. On the technical side, system documentation is created, detailing the architecture, database schema, and code structure. This helps future developers or maintainers understand how the system works and how to modify or extend it if necessary.

7. Training:

Finally, training sessions are organized to ensure that the college staff and administrators are comfortable using the new system. These sessions focus on teaching users how to enter data, generate reports, and utilize analysis features. The goal is to ensure a smooth transition and help users take full advantage of the system's capabilities for result analysis and NBA accreditation purposes. Ongoing support can be provided to address any issues or concerns that arise after deployment.

I. Flowchart (Plan of Action)



J. Expected Outcome of the project

1. A fully functional web-based system for managing NBA-required student information.
2. Modules for result analysis, placement tracking, higher studies, and entrepreneurship data.
3. Streamlined processes for managing student performance, certificates, and achievements.
4. Efficient handling of admission lists, academic year records, and GATE qualifications.
5. Additional modules for faculty and alumni information management.
6. Data visualization and reporting tools for easy analysis and NBA report generation.
7. Secure and privacy-compliant system for handling sensitive student data.
8. Improved efficiency in data collection, management, and reporting for NBA accreditation processes.

K. Estimated cost

- Software: 20,000 /-
- Domain and Hosting: 3,000 /-
- Miscellaneous: 10,000 /-

Source of Fund

College/University Grants

L. References

1. Cao, K., Wang, F., Liu, J. G. (2013). Study and Implementation of PM2.5 Data Download Service Based on Python. Applied Mechanics and Materials, 411-414. <https://doi.org/10.4028/www.scientific.net/AMM.411-414.555>
2. Chen, S., Thaduri, U. R., & Ballamudi, V. K. R. (2019). Front-End Development in React: An Overview. Engineering International, 7(2), 117–126. <https://doi.org/10.18034/ei.v7i2.662>
3. Dazon, S., Ravindran, A., Bendoraitis, A. (2016). Django: Web Development With Python. Packt Publishing, Limited. Birmingham, GB.

M. Project Batch members			
S.No.	USN	Name	Signature with date
1.	4MW21CS094	SHREELAXMI KAMATH	
2.	4MW21CS100	SNEHA	
3.	4MW21CS105	SUHANI R BHAT	
4.	4MW21CS113	VAISHNAVI RAO.B	
N. Accepted/Rejected:			
O. Suggestions for implementation:			
P. Guidance			
Guide (s) allotted		Guide Name and Signature (s) with date	
1. Guide		Ms. Preethi.M	

Q. Review Comments / Suggestion	Accept / Modify / Reject	Reviewer Name and Signature