

Internship at MultiChem

Internship Report

Submitted for the partial fulfillment of the degree of

Bachelor of Technology

In

Computer Science & Engineering

Submitted By

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UNDER THE SUPERVISION AND GUIDANCE OF

Dr. Dheeraj Kumar Dixit

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January-May 2025

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I further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

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Place: Nagpur

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This is to certify that the similarity in my report is found to be 10%, which is within the specified limit (30%).

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ABSTRACT

This internship at MultiChem, starting from 10th January 2025, provided me with an opportunity to apply and enhance my technical skills by contributing to the design and development of the company's official website. The goal of the project was to create a responsive, user-friendly, and informative online platform to showcase MultiChem's wide range of construction chemicals to both professionals and individual consumers.

Throughout the internship, I worked extensively on the frontend using HTML, CSS, and JavaScript, focusing on building visually consistent and mobile-responsive pages. The website included key sections such as Home, Products (for Professionals and Retail Users), About Us, Sectors, Support, and Reach Us. Additionally, I explored backend fundamentals using Node.js to enable basic form submissions and routing for contact and feedback functionalities.

The internship helped bridge the gap between academic learning and real-world implementation. It strengthened my understanding of website structure, UI/UX design, and foundational backend logic, while also contributing to the digital transformation of a growing Indian manufacturing company.

ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to **MultiChem** for providing me with the opportunity to pursue this internship and for the opportunity to work on a practical project that significantly enhanced my technical skills.

I am especially thankful to my mentors and team members at MultiChem for their continuous guidance, encouragement, and support throughout the internship.

I would also like to extend my sincere thanks to **Mr. Sunil Sharma** for their continuous support, valuable guidance, and insightful feedback throughout the course of this project. Their mentorship has played a significant role in the successful completion of my internship and has greatly enriched my learning experience.

A special thanks to my faculty mentor, **Dr. Dheeraj Kumar Dixit**, for his support and mentorship, and to my institution for facilitating this industry-academic collaboration.

Lastly, I am thankful to my family and friends for their unwavering support and encouragement throughout this journey.

Mayank

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NOMENCLATURE

Term/Abbreviation	Description
HTML	HyperText Markup Language – Standard language for creating web pages.
CSS	Cascading Style Sheets – Used to style and format the layout of web pages.
JavaScript (JS)	A scripting language used to create dynamic and interactive web content.
Node.js	JavaScript runtime used for server-side and backend development.
DOM	Document Object Model – Interface that represents HTML content as objects.
UI	User Interface – Visual elements through which users interact with a system.
UX	User Experience – Overall experience and satisfaction a user has with a product.
Frontend	Client-side part of the website that users interact with directly.
Backend	Server-side operations involving data processing and form handling.
Responsive Design	Design approach ensuring compatibility across devices and screen sizes.
Flexbox	CSS layout model that arranges items in one direction (row or column).
CSS Grid	CSS layout system optimized for building two-dimensional interfaces.
Form Validation	Technique to ensure user input is accurate and complete.
Version Control (Git)	System for tracking and managing changes in source code.
B2B	Business-to-Business – Transactions between businesses (e.g., MultiChem & contractors).
B2C	Business-to-Consumer – Transactions between business and individual consumers.
Routing	Process of defining application endpoints for handling different requests.
API	Application Programming Interface – Allows communication between software systems.
UI/UX Principles	Guidelines to create effective and user-friendly designs and experiences.

LIST OF FIGURES

Fig 3.1	Home Page
Fig 3.2	Products Page
Fig 3.3	About Us Page
Fig 3.4	Sectors Page
Fig 3.5	Support Page
Fig 3.6	Contact Us Page

CHAPTER 1: INTRODUCTION

The internship involved designing and developing a professional site for the company. MultiChem is a constructor and trader of construction chemicals catering to a diversified client base such as industry experts, contractors, consultants, and retail customers. Even though the company provided a great variety of top-quality products, it had sparse digital presence, which was an excellent opportunity for digital transformation.

The overall aim of the internship was to design a user-friendly, responsive, and informative website that could be used as an online platform for the products and services of the company. The website was planned in a way that included must-have sections like Home, Products (divided into categories for Professionals and Retailers), About Us, Sectors, Support, and Reach Us. The aim was not only to show product details but also enable interaction with the potential customers, suppliers, and distributors.

This project gave me the opportunity to learn and apply web technologies such as HTML, CSS, and JavaScript for the frontend, and also get first-hand experience with backend development using Node.js for dynamic content and form handling. Through this internship, I was able to develop my technical skills, learn client-centric design thinking, and see the process of a real-world web development project.

CHAPTER 2: LITERATURE SURVEY

In the current digital era, it is imperative for any business, particularly in the manufacturing and trading industry, to have a robust online presence. A well-designed website not only portrays the brand image but also acts as a communication hub for clients, partners, and customers. MultiChem, an emerging business dealing in construction chemicals, needed a professional and responsive website to reflect its wide variety of products and services.

Website Building in B2B and B2C Environments

For businesses that engage in both B2B and B2C transactions, including MultiChem, the site needs to serve two different groups of users: industry players (contractors, architects, consultants) and retail buyers (homeowners, shopkeepers, DIY users). Current studies and industrial experience indicate that product listing segmentation, intuitive navigation, and transparent grouping enhance interaction and decision-making.

Frontend Technologies

Frontend development today is all about building responsive, accessible, and interactive user interfaces. HTML lays the structural foundation, CSS takes care of presentation and layout, and JavaScript brings interactivity. Responsive design, made possible through methods such as Flexbox and CSS Grid, makes sure that websites are optimized for various screen sizes and devices.

Backend Technologies

Although frontend development was the main focus of this project, initial backend integration was also attempted with Node.js, a small and nimble JavaScript runtime. Node.js provides for the ability to make server-side applications that facilitate data processing, form handling, and simple API building. Though the backend integration here was minimal, it set the ground for further scalability and dynamic content presentation.

Design and Usability Considerations

UI/UX principles are extremely important for maintaining users and providing a seamless browsing experience. Research highlights the necessity of consistent styling, visual hierarchy, short loading times, and unambiguous call-to-action items. The MultiChem website was designed with these principles in mind to ensure it is attractive to technical experts and common consumers alike.

CHAPTER 3: WORK DONE

Throughout the internship, I remained directly engaged in end-to-end development of the MultiChem website. The activities mainly involved the frontend design and structure, with first-hand exposure to backend development using Node.js. The aim was to design a clean, responsive, and informative digital platform to cater to professionals as well as retail consumers.

The significant tasks accomplished within this timeframe are presented below:

Project Planning and Requirement Analysis:

Understood the company's business model, product categorization, and website requirements. Designed the structure and layout of major sections of the website.

Frontend Development:

Developed and implemented responsive layouts with HTML, CSS, and JavaScript. Created primary sections such as:

- **Home Page:** Presented the company and its proficiency in construction chemicals.

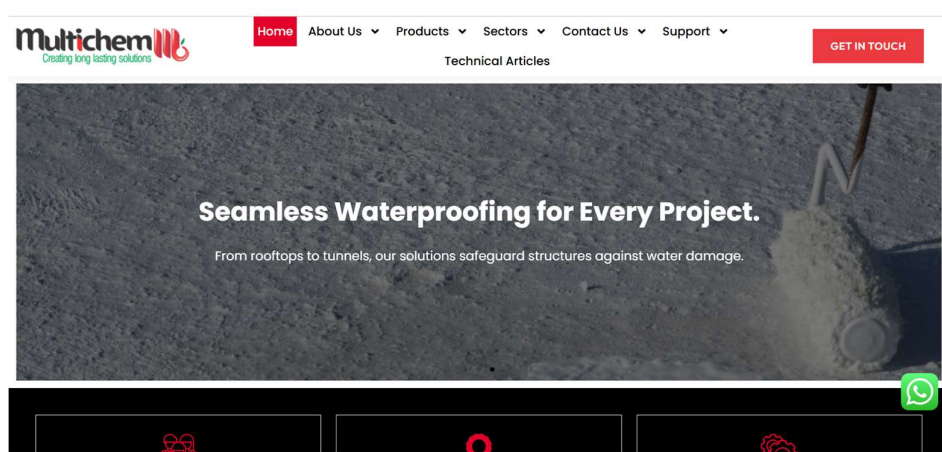


Fig 3.1- Home Page

- **Products Page:** Divided into two sections—Professionals (engineers, contractors, consultants) and Consumers/Retailers (homeowners, shopkeepers, DIY users).

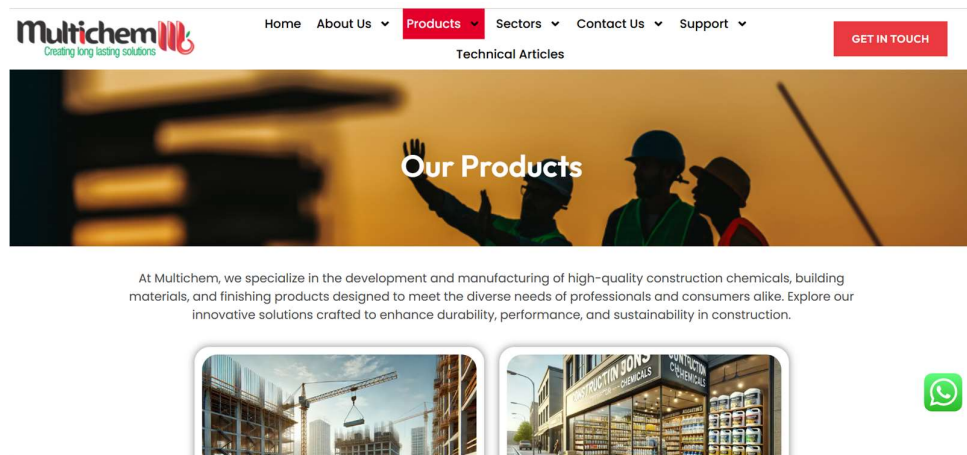


Fig 3.2 – Products Page

- **About Us:** Presented the mission, values, and achievements of the company.

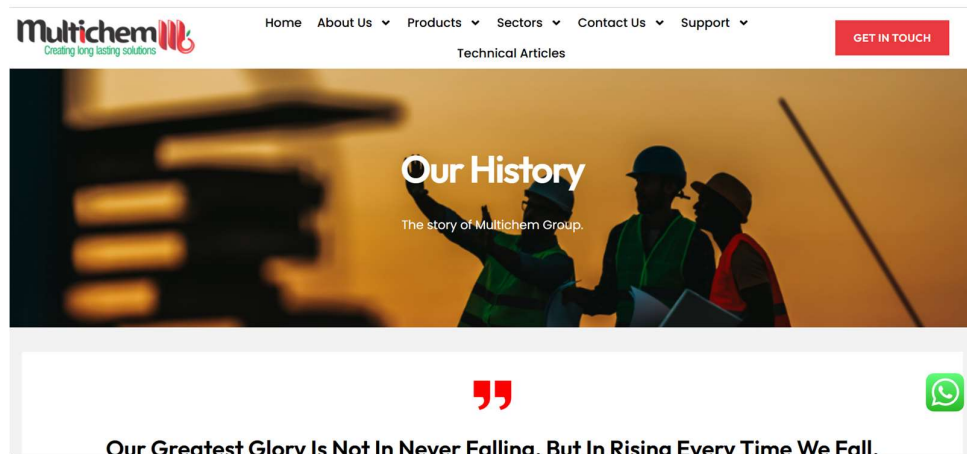


Fig 3.3 – About Us Page

- **Sectors:** Defined the sectors where MultiChem products are used, including civil infrastructure, smart cities, and industrial areas.

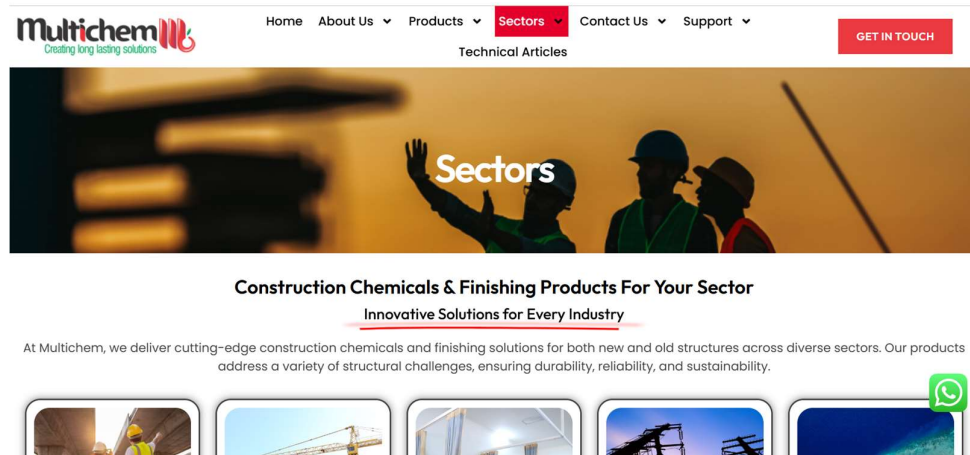


Fig 3.4 – Sectors Page

- **Support Page:** Provided FAQs, technical reports, product estimates, and dealer/distributor registration forms.

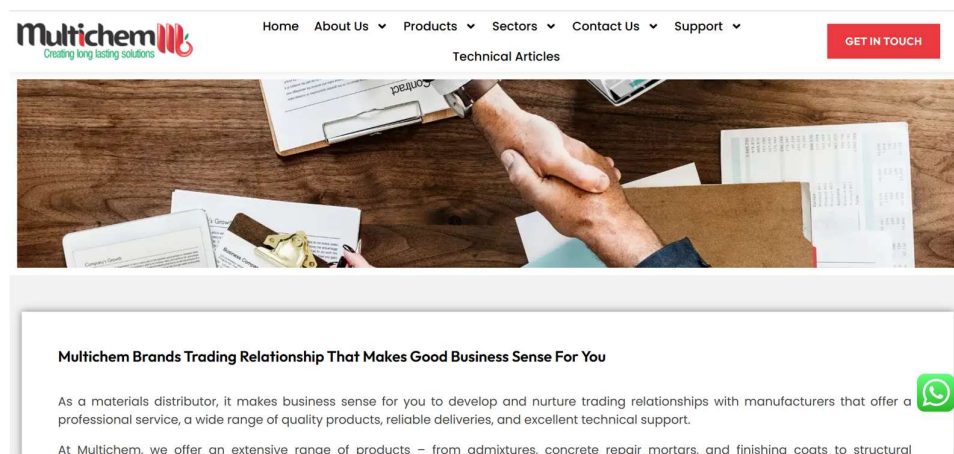


Fig 3.5 – Support Page

- **Contact Us Page:** Had contact forms, feedback options, and career links.

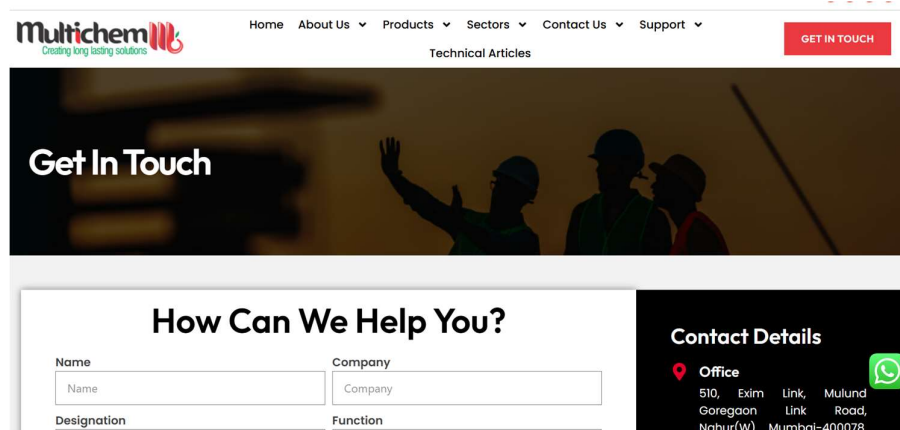


Fig 3.6 – Contact Us Page

Responsiveness and UI Design:

Prioritized mobile compatibility through CSS Flexbox and Grid systems. Used consistent fonts, colors, and layouts to enhance user experience.

Basic Backend Integration:

Utilized Node.js for simple form submissions and routing of contact and feedback forms. This added basic server-side scripting and backend logic.

Testing and Refinement:

Did browser compatibility testing and made layout adjustments based on feedback. Enhanced form validation and frontend interactivity through JavaScript..

CHAPTER 4: OUTCOMES GAINED

The internship at MultiChem provided a fulfilling experience through exposing me to the opportunity to implement my academic learnings in real-world settings and acquire hands-on experience in full-stack web development. From ensuring the success of this project, I gained various technical and professional achievements that have aided tremendously in my personal development and career progress.

Technical Outcomes:

- Successfully developed and deployed a responsive, multi-page website based on HTML, CSS, and JavaScript.
- Understood and applied web layout methods with Flexbox and CSS Grid for improved responsiveness and visual organization.
- Got practical experience with employing JavaScript to enhance user interactivity with DOM manipulation and form validation.
- Learned backend basics with Node.js to establish simple routing and manage form submissions.
- Enhanced comfort with debugging tools, code structuring, and best practices in web development.

Professional & Learning Outcomes:

- Learned to read client requirements and transform them into technical implementations.
- Understood the relevance of UI/UX principles to real-world projects and how to create for various types of users (professionals and consumers).
- Gained project planning, time management, and version control skills through iterative feedback.
- Improved problem-solving skills by overcoming cross-browser compatibility, responsive behavior, and form processing issues.

CHAPTER 5: SKILLS GAINED

Technical Skills Acquired:

- **HTML, CSS, and JavaScript Mastery:** Developed a solid foundation in web development principles and utilized them to produce well-structured and responsive web pages.
- **Responsive Design Strategies:** Became proficient in making websites responsive through the utilization of Flexbox, CSS Grid, and media queries.
- **Frontend Interactivity:** Utilized JavaScript for DOM manipulation, form validation, and enhancing user interactions.
- **Basic Backend with Node.js:** Gained introductory exposure to backend development such as installing a Node.js server, defining routes, and processing simple form submissions.
- **Version Control (Git):** Practiced keeping and managing clean project versions with Git while developing.

Soft Skills Acquired:

- **Project Planning and Time Management:** Learned to split a large project into phases and meet deadlines effectively.
- **Problem Solving:** Established the skill of debugging layout problems, responsive design issues, and logic errors.
- **Client-Oriented Thinking:** Learned from designing solutions based on actual client requirements and adjusting according to feedback.
- **Communication and Reporting:** Enhanced written and verbal communication via documentation, reporting progress, and delivering work.

CHAPTER 6: SOCIAL RELEVANCE

- It allows the company to connect with a wider audience, including industrial customers, professionals, and individual consumers, thus leading to business expansion.
- It encourages local production by highlighting proudly Made-in-India products and partnerships with Indian research centers.
- The website gives the users instant access to product information, technical assistance, and contact details, which improves customer experience and transparency.
- It minimizes the reliance on manual communication by digitizing product inquiries, estimation, and distributor contact, enhancing the efficiency of the chemical supply chain.
- Personally, the internship enabled me to implement classroom learning in a real-world environment, enhancing not only my technical skills but also communication, project planning, and problem-solving skills.

CHAPTER 7: CONCLUSION

In summary, my internship experience at MultiChem has been an incredibly worthwhile learning opportunity. In the last couple of months, I have had the chance to work on helping to build the company's new website, which will be an important component of MultiChem's online presence. Working on this project, I had direct experience in full-stack web development, where I worked on both frontend and backend development.

Developing in the frontend, I worked with HTML, CSS, and JavaScript to create interactive and user-friendly pages. This helped me to develop my skills in building responsive layouts and smooth navigation. Developing on the backend, I worked with Node.js to configure the server and handle databases, which provided me with a better understanding of server-client communication and data handling.


This internship not only made me a better technical person but also gave me an insight into the collaborative side of working in a professional setup. I was able to communicate effectively with my team, achieve deadlines, and resolve problems on the spot, which are extremely important skills for my future profession.


Overall, I am thankful to be part of the MultiChem team and help contribute to a project that will leave a lasting legacy. The experience and knowledge I have accumulated will surely be an excellent springboard for my future projects in web development.

CHAPTER 8: MONTHLY REPORTS OF PROGRESS

Monthly Report of Progress (Jan-Feb):


MONTHLY REPORT OF PROGRESS (MRP) FROM INDUSTRY MENTOR


Name of student	Mayank Pawar (0901CD211035)		Department	Technical	
Industry/Organization	Multichem		Date/Duration	10/01/2025 - 10/02/2025 (1 month)	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge upgradation				✓	
Performance/Quality of work				✓	
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	He has been actively involved in the design and development of MultiChem's website. He has worked on structuring the frontend of the website while also exploring backend development. His work has contributed significantly to establishing a digital presence for the company. Additionally, he is proactive in taking feedback and implementing improvements.				
<u>OVERALL GRADE</u>	VERY GOOD				
<u>Name of Industry Mentor</u>	Mr. Sunil Sharma				
<u>Signature of Industry Mentor</u>					

Receiving Date	10-02-2025	Name of Faculty Mentor	Dr. Dheeraj Kumar Dixit	Sign	
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Monthly Report of Progress (Feb-March):


MONTHLY REPORT OF PROGRESS (MRP) FROM INDUSTRY MENTOR


Name of student	Mayank Pawar (0901CD211035)		Department	Technical	
Industry/Organization	Multichem		Date/Duration	10/02/2025 - 10/03/2025 (1 month)	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge upgradation				✓	
Performance/Quality of work				✓	
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	He has made consistent progress in frontend development of MultiChem's site through HTML, CSS, and JavaScript. The structure and design have been polished for improved usability and responsiveness. The Products Section has been designed to display listings in an orderly fashion, and Support and Reach Us pages have been improved in usability. His active participation in the inclusion of feedback has enhanced design consistency and navigation, leading to a neat and professional website.				
<u>OVERALL GRADE</u>	Excellent				
<u>Name of Industry Mentor</u>	Mr. Sunil Sharma				
<u>Signature of Industry Mentor</u>					

Receiving Date	13-03-2025	Name of Faculty Mentor	Dr. Dheeraj Kumar Dixit	Sign	
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Monthly Report of Progress (March-April):

MONTHLY REPORT OF PROGRESS (MRP) FROM INDUSTRY MENTOR

Name of student	Mayank Pawar (0901CD211035)		Department	CSE	
Industry/Organization	Multichem		Date/Duration	10/03/2025 - 10/04/2025 (1 month)	
Criterion	Poor	Average	Good	Very Good	Excellent
Punctuality/Timely completion of assigned work					✓
Learning capacity/Knowledge upgradation				✓	
Performance/Quality of work				✓	
Behaviour/Discipline/Team work					✓
Sincerity/Hard work					✓
Comment on nature of work done/Area/Topic	He proceeded with frontend development on MultiChem's site, updating significant areas such as the Home, About Us, and Products pages for responsiveness and design uniformity with HTML, CSS, and JavaScript. At the same time, He initiated the backend setup with Node.js, looking into routing and handling data in order to be ready for integrating dynamic content. He was persistent in incorporating feedback and refining the user interface in alignment with the firm's brand.				
<u>OVERALL GRADE</u>	Excellent				
<u>Name of Industry Mentor</u>	Mr. Sunil Sharma				
<u>Signature of Industry Mentor</u>					

Receiving Date	13-04-2025	Name of Faculty Mentor	Dr. Dheeraj Kumar Dixit	Sign	
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