

**TULSIRAMJI GAIKWAD-PATIL
COLLEGE OF ENGINEERING &
TECHNOLOGY, NAGPUR**

**Technical Magazine
DATAZOID**

**DEPARTMENT OF
CSE- DATA SCIENCE**



The Gaikwad-Patil Group derives its inspiration from Late Shri. Tulsiramji Gaikwad-Patil, the grandfather of the Chairman of the Group, Dr. Mohan Gaikwad-Patil. A man far ahead of his times, Shri. Tulsiramji Gaikwad-Patil was primarily an agriculturist, but also a true connoisseur with many varied interests. One of his passions was education.

This visionary bucked the trend of sending sons into agriculture and ensured excellent education for his children and grandchildren. It was his foresight that took the family from being rural landlords to urban, uber-class professionals and entrepreneurs. It would not be far wrong to say that the real foundation of the Gaikwad-Patil Group was laid by Shri. Tulsiramji Gaikwad-Patil ability to look into the future. In the near future, the GPGI is poised to become one of the best and most dynamic institutions which will cater to varied educational needs of the increasingly bustling region of Vidarbha. With the ever-increasing levels of competition in the education sector, there is always an opportunity of moving beyond expectations, creating new milestones and benchmarks.

MANAGEMENT AUTHORITY



Dr. Anjali Patil-Gaikwad

President, Gaikwad-Patil Group of Institutes

New beginnings bring in joy and excitement. It is my pleasure to put a write up for the college magazine "DATAZOIDS". A college magazine is an eloquent expression of the progress and outstanding achievements that a college has to its credit. An academic institution magazine carries the contributions reflecting the spirit and goals of the students, faculty and other team members of an institution. Through College Magazine students get an opportunity to exhibit their extracurricular talents. They get an opportunity to pen down their thoughts and talents and make the people around them know about the glory of their institution. The role of a magazine is therefore vital in promoting what an institution offers. I take this opportunity to congratulate the Editorial Board for their unrelenting efforts in compiling this magazine.



Dr. Mohan Gaikwad Patil

Chairman, Gaikwad Patil Group of Institutes

As the Chairman of the Tulsiramji Gaikwad-Patil College of Engineering and Technology, immensely proud of the accomplishments of our institute and the individuals who contribute to its success. Our commitment to academic excellence, research innovation, and community engagement continues to be the driving force behind our mission. I encourage you to delve into the articles presented in this e- magazine, each offering a glimpse into the remarkable work happening within our institute. Whether you are an alumna/alumnus, a current student, a faculty member, or a curious reader from across the globe, I invite you to join us on this journey of intellectual exploration.



Mr. Akash Gaikwad-Patil

Vice Chairman, Gaikwad-Patil Group

"Education is the most powerful weapon you can use to change the world." It gives me immense pleasure to enlighten that Tulsiramji Gaikwad-Patil College of Engineering & Technology, Nagpur provides a platform for every student to develop his/her learning skills through the college magazine DATAZOID. This magazine will enlighten you with the important milestones that College has achieved this year. Besides, our budding talents have expressed their thoughts, ideas, hopes, feelings, aspirations and convictions in a creative way. The students participated in seminars, workshops and industrial visits to improve the skills required. This magazine is a good source of guidance for faculty and coming batches of students in choosing activities of their choice in their future for building their career. I congratulate all the stakeholders including the editorial board and students of the college for bringing this edition of Magazine 24-25. Wish you all the best.



**Prof. Sandeep Gaikwad Treasurer,
Gaikwad-Patil Group of Institutions**

I trust this message finds you in good health and high spirits. It is with great pleasure and a sense of responsibility that I reach out to you as the Treasurer of our esteemed institute through the pages of this e-magazine. I invite you to explore the pages of this e-magazine, where we share stories of success, innovation, and the positive impact that your contributions have made. Let these pages be a testament to the strength of our community and the positive change that we can create together.

ACADEMIC PATRONS



Dr. P. L.Naktode

Principal, TGPCET.

As the principal of the college, it is my testimony here that, in the past year, despite the challenges presented by the global landscape, our students and faculty have displayed remarkable resilience and adaptability. From groundbreaking research initiatives to artistic expressions that stir the soul, each contribution adds to the unique character of our college. As we delve into the pages of this e-magazine, I encourage you to embrace the stories, insights, and accomplishments that showcase the collective spirit of our community. It is through collaboration, understanding, and a shared commitment to excellence that we continue to shape the future of our college.



Dr. Pragati Patil Vice

Principal, TGPCET

At the outset, I warmly applaud TGPCET for bringing us the latest edition of the college magazine "DATAZOID". This magazine is intended to bring out hidden literacy talent of students and faculty and also to inculcate leadership skills among them. It is a great pleasure to see the creative expressions of students who had contributed. This magazine has made an earnest attempt in this direction and brought out certain aspects of the college to the eyes of the public so that they may understand and know the college even better. I strongly believe that it would be an excellent medium through which the world can learn about the potential and achievements of TGPCET. I congratulate the members of the editorial board for their tireless efforts. Wishing the magazine, a lasting success!



Dr. Geeta Padole-Gaikwad

DIRECTOR, ADMISSION CELL

Our institute has always been at the forefront of cutting-edge research, academic excellence, and fostering a vibrant community of learners and thinkers. The e-magazine serves as a testament to our commitment to sharing knowledge, celebrating achievements, and creating a space for meaningful dialogue. In each edition, you can expect to find articles, features, and insights from our esteemed faculty, talented students, and renowned guest contributors. We aim to cover a wide array of topics, ranging from the latest advancements in our respective fields to the personal and inspiring stories that make our community unique. I encourage each one of you to actively participate in this initiative. Share your experiences, research findings, and thoughts that contribute to the intellectual tapestry of our institute. Let's make this e-magazine a dynamic platform for collaboration, learning, and inspiration. Thank you for being an integral part of our thriving community.



Dr. Prashant Thakre

Head of Department, TGPCET

Looking ahead, I am excited about the opportunities that the future holds for our department. Together, we will continue to explore new frontiers, push the boundaries of knowledge, and prepare our students to become leaders in their respective fields. I encourage you to dive into the pages of this e-magazine, explore the stories within, and join me in celebrating the achievements of our extraordinary department. Thank you for your unwavering dedication and for being an integral part of our vibrant academic community. Wishing you all a joyous holiday season and a successful year ahead!

ABOUT DEPARTMENT

Year of Establishment:-2021

Intake:-120

In order to give students exposure to and competence regarding the paradigm of data science, which has basically become an inherent element of many sectors and organizations, the B.Tech in Computer Science and Engineering (Data Science) is offered in 2021. Computing science, applied mathematics, computational statistics, management, and analytics come together to form the specialized multidisciplinary field known as data science. The Data Science Engineers play a crucial role in the organization, working together with Data Scientists and Data Analysts to assist businesses solve complicated challenges and make decisions with a strong business sense. The program's goal is to focus on fundamental topics in data science, such as analytics, visualization, modelling, knowledge representation, the internet of things, machine learning, and decision-making, with a strong emphasis on getting hands-on experience through practical, real-world case studies, and exposure to the data science industry

FACULTY OF DEPARTMENT



Prof. Renuka Naukarkar.
(M. Tech CSE)



Prof. Apeksha Raut
(M.Tech VLSI)



Prof. Preshita Mahiskar

M.tech(CSE)



Prof. Sayara Bano Sheikh

M.tech(WCC)

On behalf of TGPCET Department of we the faculty of CSE- Data Science congratulate each one for creative journey of magazine Data Zoid I congratulate each and every student for further enhancement of their skills.

EDITORIAL BODY



Prof. Preshita Mahiskar
Editor Chief



Content Editors

Ms.Devanshi Shingade



Ms.Samrudhhi Bambulkar



Mr.Shubham Ambhore.

Vision of the Department

To achieve excellent standards of quality-education by creating Data Science Engineers who are empowered with latest tools and technologies to provide customer-oriented innovations to industry towards serving the

greater cause of society.

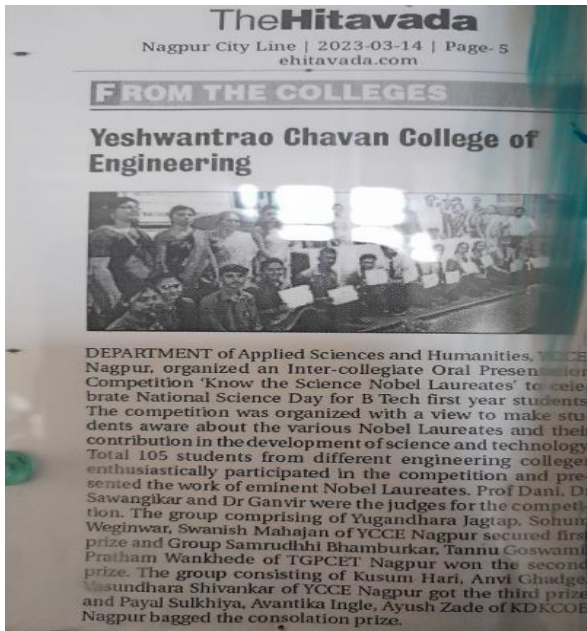
Mission of the Department

- To develop professionals who are skilled in the area of Data Science
- To undertake industry academic collaboration to enhance competency in graduates.
- To foster innovative ideas amongst students for becoming leaders.
- To create an environment of research culture.
- To impart social and ethical values for inculcating the culture of lifelong learning.

Program Education Objectives (PEO)

- Acquire fundamental knowledge of mathematics, science and engineering to analyze, design and implement solutions to the Data Science problems
- Understand emerging concepts and trends in Data Science.
- Apply Data Science tools to develop innovative computational systems.
- The students are encouraged to develop the habit of lifelong learning to face the challenges.
- The students will be embedded as a responsible individual having ethical and social values to lead the society and to nurture team spirit.

DEPARTMENT EXCELLENCE:



Samruddhi Bhamburkar got 1st Rank in Debate Competition and 2nd Rank in Power-Point Presentation competition at YCCE and it is highlighted by The Hitavada.





NAAC Accredited

TULSIRAMJI GAIKWAD-PATIL
College of Engineering & Technology

Mohgaon, Wardha Road, Nagpur - 441108 An ISO 9001:2015 Certified Institution
(Approved by AICTE Recognized by Govt. of Maharashtra & Affiliated to Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur)

www.tgpcet.com

DTE
CODE
4151



CERTIFICATE

OF PARTICIPATION

World Health Day "2K23"

THIS CERTIFICATE IS PROUDLY PRESENTED TO

Vanashri Ramdas Kumbhalkar

**Participated in Poster competition on World Health Day
organized by Civil Engineering Department on
6th April 2023**

Divyani Harpal

Prof. Divyani D. Harpal
Faculty Coordinator



Aasif

Prof. Aasif M. Baig
HoD, Civil Engineering

Winner in Poster Competition



||| COURSE COMPLETION CERTIFICATE |||

The certificate is awarded to

Rushikesh Badge

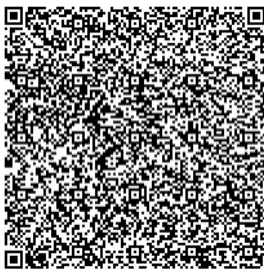
for successfully completing the course

HTML and CSS: Build your own personal blog

on December 1, 2023



Congratulations! You make us proud!



Issued on: Wednesday, December 6, 2023
To verify, scan the QR code at <https://verify.onwingspan.com>

Thirumala Arohi
Senior Vice President and Head
Education, Training and Assessment (ETA)
Infosys Limited

ACADEMIC TOPPERS

UNIVERSITY TOPPERS



AUTONOMOUS TOPPERS



Nidhi Sharnagat
CGPA:9.82



Vishakha Ghatole
CGPA:9.82



Samruddhi Bhamburkar
CGPA:9.76

University Toppers 

 <p>1st topper Nikita Ukinkar CGPA 7.96</p>	 <p>2st topper Suhani Sahu CGPA 7.50</p>	 <p>1st topper Harsha Baghele CGPA 7.50</p>
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PROJECTS :

- Students of Tulsiramji Gaikwad patil college Engineering and Technology ,Department of Data Science Shubham Ambhore and Samruddhi Bhamburkar made a Fully Responsive Website name as “*MANADHAAR*” which is fully devoted to Marathi directory. People who are fond of writing poems can add their poems to it. This website will give you information about famous marathi poets and writers and their writing.
- Student of Tulsiramji Gaikwad patil college Engineering and Technology, Department of Data Science Dnyaneshwar Jadhav made an Algorithm which will take profitable Trading decision and will help user to make Trading experience better

DEPARTMENTAL ACTIVITIES

GUEST LECTURES & INDUSTRIAL VISIT



Students interaction and participation in Guest Lecture on “CLOUD COMPUTING ESSENTIALS”



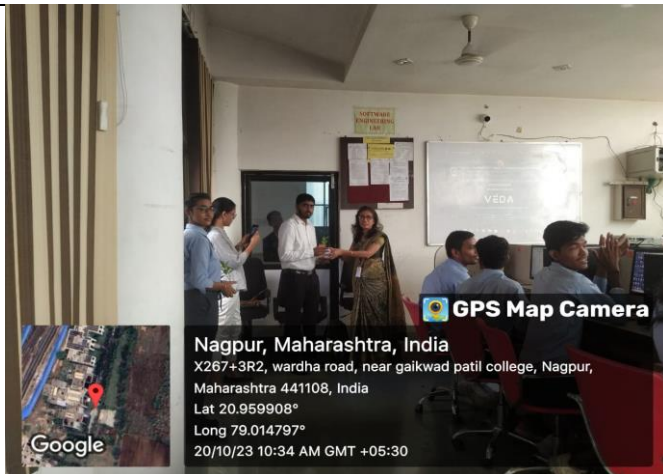
Students participation in Guest talk on “WEB DEVELOPMENT TOOLS AND AGILE METHODOLOGY”



Glimpse of Induction Program



Glimpse of Industrial Visit at “V.R. Siemens, VNIT College of Engineering, Nagpur.





Glimpse of Two days Workshop on “Language Oriented Programming”





Glimpse of Forum Installation and Guest Lecture

TECHNICAL ARTICLES:

ARTICLE 1: “What of Privacy?” – a constant plague to the mind

With the ever-growing usage of the cloud services spread wide and vast, across the globe the concerns regarding data privacy and security have been rising along, just the same. It’s one thing that people don’t compromise with and shouldn’t either; but when the services being presented are of top-notch quality and fail in security is compared to a cheaper service quality and foolproof security; even I as the user would opt for the later. Many businesses directly deal with the personal information of the user, the client, the investor, the employee including the employer themselves at times. And as such it is important for them to keep this personal information (PII – personally identifiable information) highly confidential for various reasons such as the trust of a user – which is one of the essential pillars for any business. And the knight shining armor here, comes as the General Data Protection Regulation (GDPR) which is a legislation that updated and unified the data privacy laws across the European Union (EU). The shield of this knight is the combination of 7 principles it stands for – 1) Lawfulness, fairness, and transparency. 2) Purpose Limitation. 3) Data Minimization. 4) Accuracy. 5) Storage Limitations. 6) Integrity and Confidentiality. 7) Accountability. And as for the sword it is the legal issues the company shall face with its non-compliance. Now, the part for understanding who is subjected to follow the guidelines of the GDPR – data subject, data controller, and data processors essentially including almost all the parties involved with the data. But as users ourselves we need to take certain steps from our end for data privacy. The first step in protecting one's privacy is to be mindful of what

personal information they share online.

While social media platforms have become an integral part of our daily lives, one must exercise caution when sharing sensitive information such as contact details, dates of birth, and financial information. These details can easily be accessed by third-party apps and used for malicious purposes. Moreover, public Wi-Fi networks can be insecure, and data can be intercepted and stolen by cybercriminals. It is crucial to use secure networks and encrypt all sensitive data while transmitting it. While it may seem like an uphill battle, protecting one's privacy online is not impossible. By being aware of the threats and taking proactive steps to safeguard one's data, individuals and organizations can minimize the risk of data breaches and protect themselves from potential harm. The importance of data privacy and security can never be emphasized enough, and it's essential to exercise caution and stay vigilant at all times.

ARTICLE 2: Revolutionizing the Way We Learn. With the rapid advancement of technology, and the increasing volume and complexity of data, there is a growing demand for skilled data analysts and data scientists to make sense of the information available. Data science, therefore, has become a vital part of many industries, including education. In education, the use of data science is quickly transforming the way schools and universities conduct business. From identifying at-risk students and providing personalized learning plans to optimizing curriculums and monitoring progress, data science is transforming the education system. This has led to the development of new tools and techniques that can help educators gain insights into students' behavior, interests, and learning patterns. One such technique is Natural Language Processing (NLP), which can analyze vast amounts of data generated from text-based interactions, including student assignments, social media conversations, and teacher feedback. By processing this data, NLP can identify patterns and trends, which can help teachers tailor instruction to the needs of individual students. Another example of data science in education is the use of predictive analytics.

Predictive analytics can help educators anticipate academic outcomes based on past performance and other relevant factors. This can aid in the early identification of students who are at risk of falling behind or dropping out, allowing educators to provide them with the necessary support and interventions. The use of data science in education is not only limited to predicting academic outcomes. It can also be used to improve the overall efficiency of administrative processes. For instance, data-driven decision-making can help automate administrative tasks, such as scheduling, payroll, and grading,

thereby freeing up time for teachers to focus on delivering high-quality instruction. However, the use of data science in education comes with a number of challenges, such as data privacy and security. Educators must be mindful of the ethical implications of collecting and analyzing student data, and they must ensure that individuals' privacy rights are being respected. In addition, there are concerns regarding the potential bias in the data, which can impact the accuracy of the analysis. To overcome these challenges, educators and stakeholders must adopt a data-driven mindset, develop strategies to address these concerns, and work collaboratively to ensure that data is being collected, processed, and utilized ethically. With the right approach and tools, data science has the potential to transform education and create a more personalized and effective learning environment.

science in geospatial data analysis has become a crucial tool for decision-making in fields such as urban planning, agriculture, and environmental monitoring. By mapping and analyzing geospatial data, organizations can gain valuable insights into geographic trends and patterns, identify potential risks and opportunities, and make data-driven decisions that promote sustainability and public safety. One of the most common applications of data science in geospatial analysis is location analytics, which can help organizations optimize their resources and improve their operations. For instance, transport and logistics companies can use geospatial data to locate the most efficient routes for delivery vehicles, reducing travel times and costs. Similarly, law enforcement agencies can use geospatial data to map areas of high crime rates and deploy resources to those areas to prevent crime. Another application of data science in geospatial analysis is natural disaster management. By analyzing geospatial data related to weather patterns, population distributions, and infrastructure, organizations can forecast potential natural disasters and take proactive measures to mitigate their impact. For instance, the use of data science in geospatial analysis can help governments identify vulnerable communities that may be affected by natural disasters and provide them with early warning systems and relief measures. In environmental monitoring, data science can be used to track and analyze the impact of human activities on the environment. By analyzing geospatial data related to land use, air quality, and biodiversity, organizations can identify areas of environmental concern and take actions to conserve natural resources. Despite the many benefits of data science in geospatial analysis, it is important to note that the

collection, management, and analysis of geospatial data present unique challenges. Data collected from different sources, such as satellite imagery, land surveys, and ground sensors, can be inconsistent and difficult to integrate. Additionally, the complexity of geospatial data requires specialized expertise to analyze and interpret it effectively. To address these challenges, organizations must invest in the development of advanced data science tools, hire experts in geospatial analysis, and ensure that data is collected, processed, and analyzed in an ethical and transparent manner.

revolution: Its impact on society and firms – Professor Spyros Makridakis. An excerpt is presented below: - Abstract The impact of the industrial and digital (information) revolutions has, undoubtedly, been substantial on practically all aspects of our society, life, firms and employment. Will the forthcoming AI revolution produce similar, far-reaching effects? By examining analogous inventions of the industrial, digital and AI revolutions, this article claims that the latter is on target and that it would bring extensive changes that will also affect all aspects of our society and life. In addition, its impact on firms and employment will be considerable, resulting in richly interconnected organizations with decision making based on the analysis and exploitation of “big” data and intensified, global competition among firms. People will be capable of buying goods and obtaining services from anywhere in the world using the Internet, and exploiting the unlimited, additional benefits that will open through the widespread usage of AI inventions. The paper concludes that significant competitive advantages will continue to accrue to those utilizing the Internet widely and willing to take entrepreneurial risks in order to turn innovative products/services into worldwide commercial success stories. The greatest challenge facing societies and firms would be utilizing the benefits of availing AI technologies, providing vast opportunities for both new products/services and immense productivity improvements while avoiding the

dangers and disadvantages in terms of increased unemployment and greater wealth inequalities. The above written information is an excerpt from the research of the author, kindly read the rest from the site it's posted on.

TECHNICAL PAPER 2: Tracking and predicting technological knowledge interactions between artificial intelligence and wind power: Multimethod patent analysis – Jinfeng Wang, Lu Cheng, Lijie Feng, Kuo-Yi Lin, Luyao Zhang, Weiyu Zhao.

To track the dynamics of AI and wind power technology knowledge interaction and predict future interaction directions, this study proposes a multiview and multilayer patent analysis framework based on three data-driven methods: DMC co-occurrence networks, LDA, and link prediction. The framework is applied to collate and analyse patents related to wind power technologies using artificial intelligence from 2010 to 2021. We find that the number of AI and wind power technology knowledge interactions increases significantly over time, but the network is sparse overall and still has much room for improvement. Second, the AI and wind power technology knowledge interaction patterns show a shift from machine learning models (generation-side wind power technology) to deep learning models (generation-side and transmission- and distribution- side wind power technology) to hybrid AI models (generation, transmission, distribution, and power consumption in the whole process of wind power technology). Finally, possible future directions of interaction between AI and wind power are predicted. The proposed framework is expected to yield a new empirical perspective on green energy technology

development. Additionally, the obtained results provide a comprehensive understanding of AI application research in wind power generation. The above written information is an excerpt from the research of the author, kindly read the rest from the site it's posted on.

