



TECH SPARK

Electronics & TeleCommunication

**Vol 4
2022 - 2023**

**IF YOU
CANNOT DO
GREAT THINGS,
DO SMALL
THINGS IN A
GREAT WAY.**

NAPOLEON HILL ◆

INSTITUTE VISION AND MISSION

VISION

- Nation building by creating opportunities for rural and urban students through excellence in education and research in the field of Engineering and Management.

MISSION

- To develop the students for best academic and industrial practices by implementing innovative teaching learning methodologies, promoting all round development by giving exposure to series of activities.
- To prepare the students to face global challenges by equipping them with requisite technical expertise and developing entrepreneurship skills among them.
- To promote research attitude among faculty and students.

DEPARTMENT VISION AND MISSION

Department Vision

- To provide valuable resources for Industry and Society through research and excellence in Electronics and Tele-Communication Engineering.

Department Mission

- Educating students with requisite technical expertise to meet the growing challenges of the Industry.
- Promoting research through constant interaction with research bodies and various Industries.
- Equipping students with fundamental subject knowledge to enable them for continuing Education.

PROGRAM EDUCATIONAL OBJECTIVES

- **PEO1:** Graduates would be able to provide the Engineering solution with strong research capabilities in the areas of Electronics and Tele-Communication.
- **PEO2:** Graduates would be able to achieve good career using improved skill sets.
- **PEO3:** Graduates would be able to provide a solid foundation and advanced programming skill in the field of electronics.

PROGRAM SPECIFIC OUTCOME

- **PSO1:** Apply knowledge to use modern tools and techniques for Electronics and Tele-Communication Engineering
- **PSO2:** Identify, Design, and Test Analog, Digital Communication Systems and Signal Processing using software and hardware tools.
- **PSO3 :** Design and develop computing systems while using best practices for software and hardware implementations.
- **PSO4:** Create social and professional skills awareness for lifelong learning.



Dr. Ulhas D. Shiurkar
(Director, DIEMS)

Dear Readers,

As the Director of Deogiri Institute of Engineering and Management Studies. This publication is a testament to the talent and hard work of our students and faculty members, and I am honored to have the opportunity to share a few words with you.

Deogiri Institute Engineering and Management Studies., our mission is to provide our students with a high-quality education that prepares them for success in their careers and in life. We believe in fostering a supportive and inclusive community that encourages creativity, innovation, and collaboration. Through our programs and initiatives, we aim to inspire our students to pursue their passions and make a positive impact on the world.

I am incredibly proud of the accomplishments of our students and faculty members, and I look forward to seeing what the future holds for our college. Thank you for your interest in our departmental magazine, and I hope you enjoy reading it as much as we enjoyed putting it together.

All the best students!!!!



Dr. Rajesh M. Autee

(HOD, E& TC Department.)

Welcome to the department of Electronics and Tele-Communication at Deogiri Institute of Engineering and Management studies. On this bright day, I feel proud to announce that our department is publishing a magazine. It pleases me to see the involvement which the students have in both the technical and non-technical zones. I would like to see a lot more exciting contents I, take great honor in congratulating to all who have participated for the magazine. Acknowledging the fact that the magazine is completely created and designed by the students, I really hope this activity would kindle a spark in the minds of the students who are yet to contribute towards the progress of the magazine initiative in the upcoming years.

All the best students!!!!

**IT TAKES TIME
TO SUCCEED
BECAUSE
SUCCESS IS
MERELY THE
NATURAL
REWARD OF
TAKING TIME
TO DO
ANYTHING
WELL.**

CONGRATULATIONS TO ALL MEMBERS

It is with immense happiness that we present to our readers this edition of 'SPECTRUM.' This magazine serves as a platform to showcase the literary skills and innovative ideas of both teachers and students. It was crazy when we stated it but when it all come together, we were more than happy

We want to express our heartfelt appreciation to all the authors who contributed articles to this magazine. Their contributions demanded a generous amount of time and effort, and it is their willingness to share their knowledge, concerns, and special insights with fellow beings that has made this magazine possible. We hope you enjoy reading these articles, as seen through the journalistic eye of DIEMS ENTC students.

Thank You All !!!!



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All About **Electronics**

ELECTRONICS & AI

The integration of electronics and artificial intelligence (AI) has revolutionized the landscape of modern technology. Electronics, with its core components like microprocessors and integrated circuits, provides the necessary infrastructure for AI to thrive. AI algorithms, particularly those related to machine learning, leverage the computational power of electronics to process vast amounts of data and make intelligent decisions. Specialized hardware accelerators, such as GPUs and ASICs, enhance the efficiency of AI tasks, contributing to the rapid advancement of neural network technologies. The collaboration between electronics and AI is evident in applications like robotics, where electronic sensors and actuators work in tandem with AI algorithms to create intelligent and adaptive robotic systems. Moreover, the synergy extends to edge computing, quantum computing, and the Internet of Things (IoT), showcasing a seamless integration that is reshaping industries and daily life. As these two fields continue to evolve hand in hand, the possibilities for innovative technologies and intelligent solutions are boundless.

The convergence of electronics and artificial intelligence (AI) is driving transformative changes across diverse sectors. In the realm of natural language processing, electronic components are instrumental in developing sophisticated algorithms that enable machines to comprehend and respond to human language. The rise of edge computing, facilitated by compact and energy-efficient electronics, empowers AI applications to operate in real-time at the source of data generation, reducing latency and enhancing responsiveness.

As electronics continue to advance, incorporating novel materials and designs, and AI algorithms become increasingly sophisticated, the symbiotic relationship between these two fields will likely unlock unprecedented possibilities. From personalized AI assistants to breakthroughs in medical diagnosis and treatment, the fusion of electronics and AI is shaping a future where intelligent technologies seamlessly enhance various facets of our lives.

- By Om R. Doifode T.Y-A



**The Journey
of a thousand
miles begins
with a single
step.**

-Lao Tzu



BLOGS

MY CODING JOURNEY

~By Shubham Pitekar (S.Y. A)

As an Attendee and In the Management Team,

Embarking on the journey into the world of cybersecurity at the one-week Cyber Security Development Workshop at Deogiri Institute of Engineering and Management Studies (DIEMS) in 2023, was a thrilling experience. Little did I know that this week would not only deepen my understanding of cybersecurity but also offer a unique dual perspective as both an attendee and a member of the management team.

The inaugural ceremony was graced by Mr. Sanjay B. Kalyankar, the Head of the Department of Computer Science and Engineering, and Mrs. Priyanka B. Dhas, the GDSC faculty facilitator. Their presence set the tone for an enriching week ahead. As an attendee, I anticipated an immersive dive into the world of ethical hacking, network security, and incident response.

The sessions were not mere lectures but interactive experiences guided by the expertise of Dr. Tanmay Dikshit, the workshop conductor. Practical demonstrations and hands-on exercises allowed us to apply theoretical knowledge in simulated cyber attack scenarios, making complex concepts tangible.

One of the highlights for me was the invaluable guidance received from Dr. Subhash Lahane, the Dean of Academics, during the valedictory session. His presence reinforced the commitment of DIEMS to excellence in education and technology. As an attendee, this added a layer of holistic educational experience to the technical exercises.

As a member of the management team orchestrating the workshop, the experience was equally gratifying. Collaborating with organizations like Cyber Sanskar and Google Developers Student Club (GDSC) DIEMS to bring in the expertise of Dr. Tanmay Dikshit added depth to the event.

Meticulous planning, from conceptualizing workshop modules to coordinating with distinguished speakers, was a collective effort. The support and guidance from Mr. Sanjay B. Kalyankar and Mrs. Priyanka B. Dhas were instrumental in ensuring a seamless execution of the program. Their presence at the inauguration not only boosted the attendees' morale but also underscored the institutional commitment to fostering technological excellence.

Working closely with Dr. Subhash Lahane, the Dean of Academics, added a layer of strategic insight to the event. His vision for integrating cybersecurity education into the academic fabric of DIEMS contributed to the workshop's success. The valedictory session, where participants were recognized with badges and certificates, was a moment of pride for the entire management team.

MY CODING JOURNEY

~By Shubham Pitekar (S.Y. A)

This dual perspective allowed me to witness the impact of meticulous planning and passionate execution. As an attendee, I absorbed knowledge and honed my skills; as a team member, I contributed to crafting an educational odyssey for others.

The Cyber Security Development Workshop at DIEMS stands as a testament to the institution's dedication to nurturing the next generation of cybersecurity professionals. This unique experience equipped me not only with cyber skills but also with a profound appreciation for the collaborative effort that goes into creating impactful educational experiences. The journey doesn't end here; it's a stepping stone towards greater technological heights.

A background image featuring a close-up of pink flowers with green leaves, partially obscured by a white rectangular frame.

**“All our dreams
can come true,
if we have the
courage to
pursue them.”**

WALT DISNEY

SPAPER

The number of jobs has fallen sharply over the past

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The number has fallen sharply over the past year

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ARTICLES

NEWSPAPER



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ARTIFIAL INTELLIGENCE & AUTOMATION IN ELECTRONICS

The seamless integration of artificial intelligence (AI) and automation within the realm of electronics has ushered in a new era of technological advancement. In manufacturing and assembly, robotic systems driven by AI algorithms undertake intricate tasks with heightened precision, enhancing production efficiency and minimizing errors. The application of AI in quality control and inspection ensures that electronic products meet stringent standards through rapid defect identification. Supply chain management benefits from AI-powered automation, optimizing logistics and inventory management. Predictive maintenance, facilitated by AI analysis of real-time sensor data, enhances the reliability and longevity of electronic systems.

In the development of smart electronics and Internet of Things (IoT) devices, AI enables personalized user experiences by learning preferences and adapting to changing conditions. Autonomous vehicles and drones leverage AI for navigation and decision-making, contributing to the advancement of intelligent transportation systems. The integration of robotic process automation (RPA) streamlines repetitive tasks in data processing and customer support, freeing human resources for more strategic endeavors. Energy management in electronics benefits from AI-driven automation, optimizing power consumption and promoting environmental sustainability. Lastly, natural language processing (NLP) powered by AI enhances human-machine interaction, exemplified in voice-activated smart assistants and devices. This convergence of AI and automation with electronics not only propels technological innovation but also redefines the efficiency, functionality, and user experience across diverse industries.

Beyond manufacturing and product development, AI and automation continue to reshape the landscape of electronics in various domains. In healthcare, electronic medical devices leverage AI algorithms for diagnostics, patient monitoring, and personalized treatment plans. Robotics equipped with AI capabilities assist in delicate surgeries, providing surgeons with precision and insights.

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The financial sector benefits from AI-driven algorithms that analyze vast datasets to identify patterns, detect fraudulent activities, and optimize investment strategies. Trading platforms utilize automation to execute trades at high speeds based on pre-defined algorithms.

In the realm of customer service, AI-driven chatbots and virtual assistants enhance user interactions by providing real-time responses to inquiries, troubleshooting issues, and personalizing user experiences. Electronic devices, from smartphones to smart home systems, increasingly integrate voice recognition and facial recognition technologies powered by AI, enhancing security and user convenience.

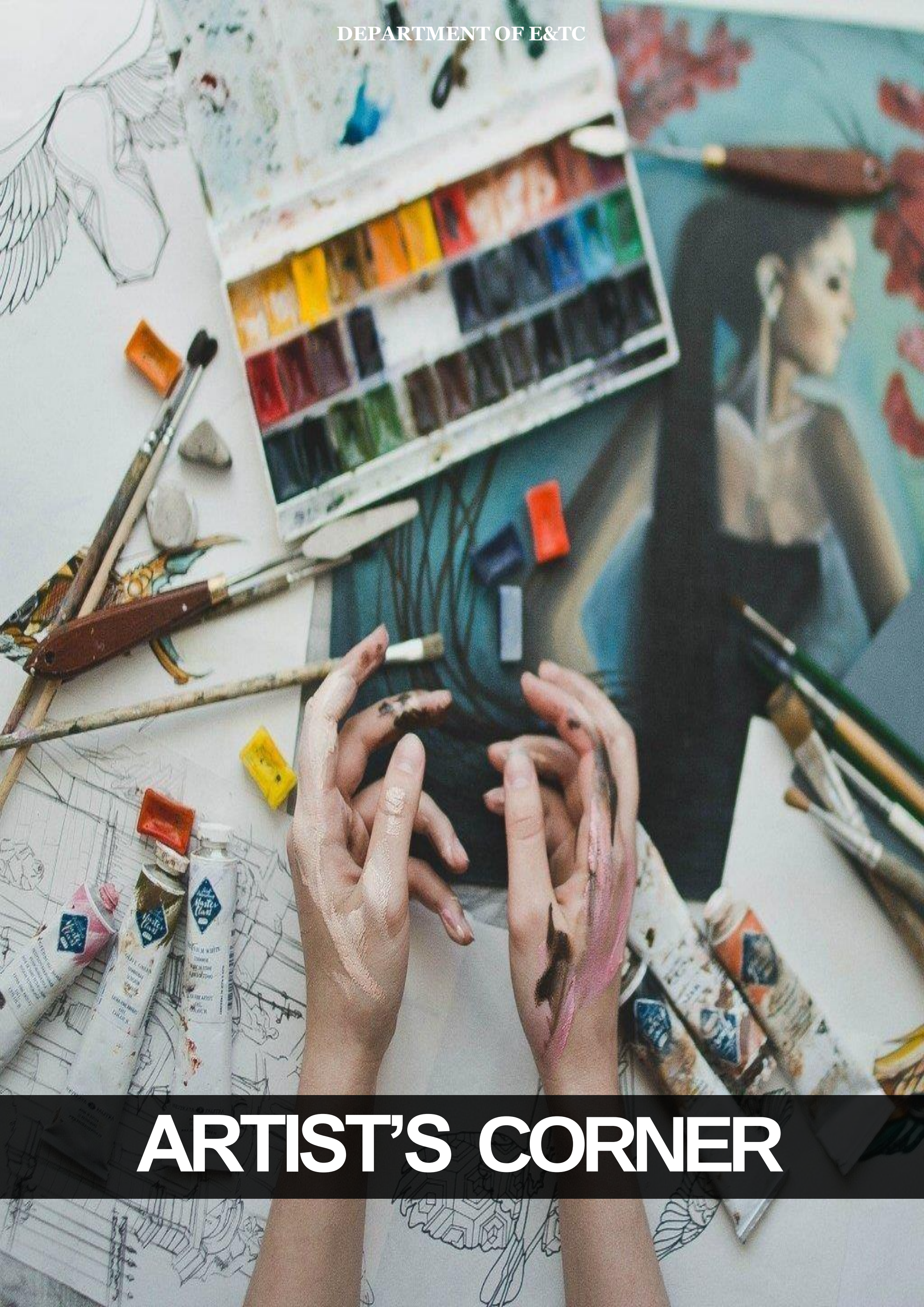
Furthermore, AI and automation contribute significantly to the development of autonomous systems in agriculture, where precision farming techniques leverage sensors and AI algorithms to optimize crop management, irrigation, and harvesting. Environmental monitoring systems utilize electronic sensors and AI to analyze data, helping in the detection of pollution levels, climate changes, and natural disasters.

The synergy between AI, automation, and electronics extends to education, where smart classrooms leverage AI for personalized learning experiences, adaptive assessments, and intelligent tutoring systems. Research in quantum computing, an advanced field of electronic computation, holds the promise of solving complex problems beyond the capabilities of classical computers, further advancing the frontiers of technology.

As the relationship between AI, automation, and electronics continues to evolve, these innovations are not only enhancing efficiency but also influencing societal paradigms, redefining how we interact with technology and its applications across diverse sectors. The ongoing exploration and integration of these technologies are poised to shape a future where intelligent systems and electronic devices seamlessly enrich various facets of our lives.

- By Ajinkya Wakhure (T.Y-B)

A little
Progress
each day
adds up to
big results



ARTIST'S CORNER

DEPARTMENT OF E&TC

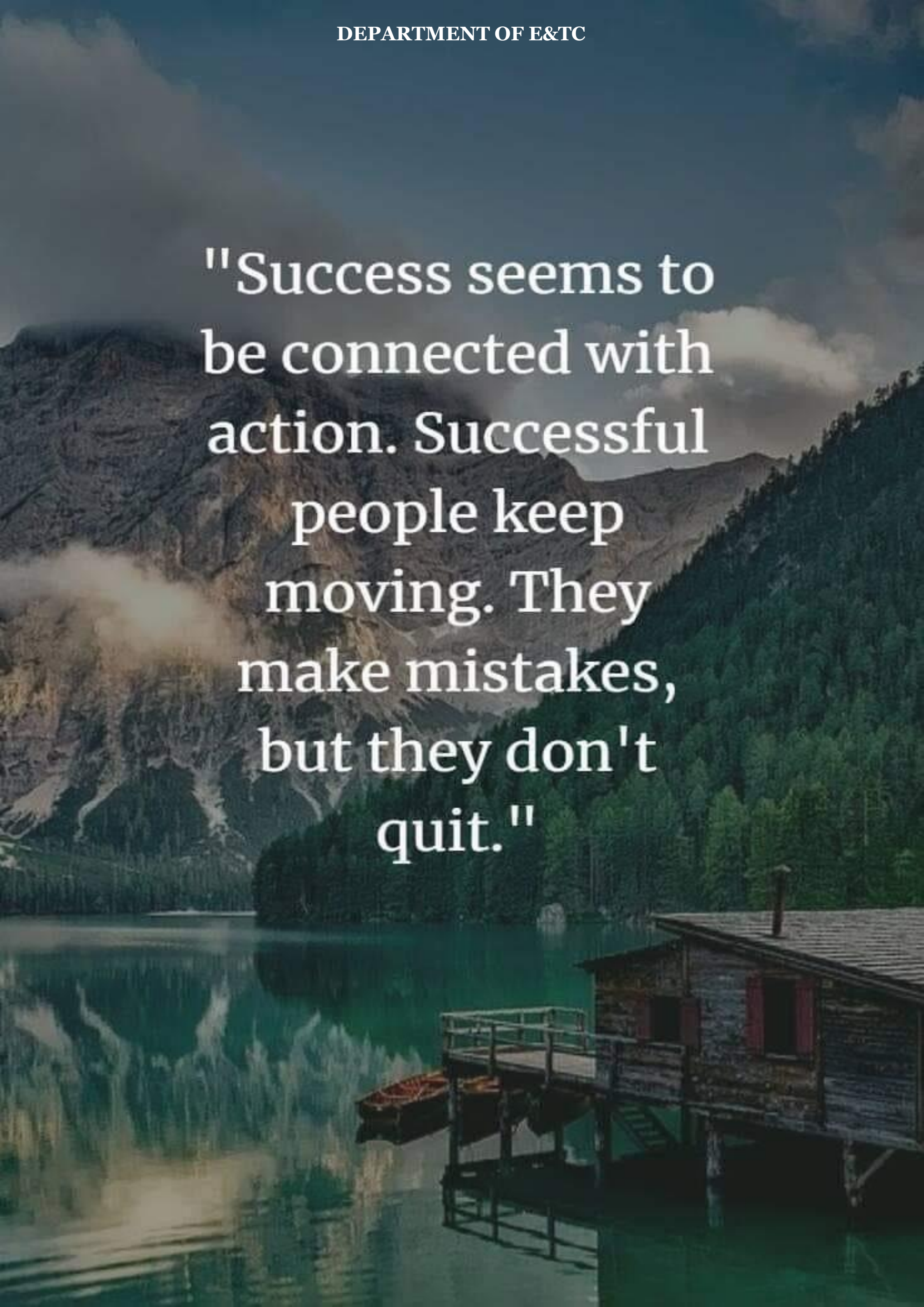
Sketch by – Vallabh Mule (SY-B)



Sketch by – Vallabh Mule (SY-B)



"Success seems to be connected with action. Successful people keep moving. They make mistakes, but they don't quit."



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POETRY



TIME

According to me, this proverb is wrong. Because people don't run after time. But after money, people take a run very long...

Time is 'not' money. Because the money which you spend, You can regain it. But spent time can never be regained...

Time is a thing, you get only once. Just like a chocolate. The same one you can't eat again. Which you once ate...

Time is unique. It's just like a pin small. Which, if lost in a desert, Can be found out not at all...

Time is like a horse, Which runs a race. Once started to run, Never turns back his face...

In the same way, In our life's track, Time once gone, Never comes back...

- By Devashish Patil

DIFFICULT
ROADS
LEAD TO
BEAUTIFUL
DESTINATIONS

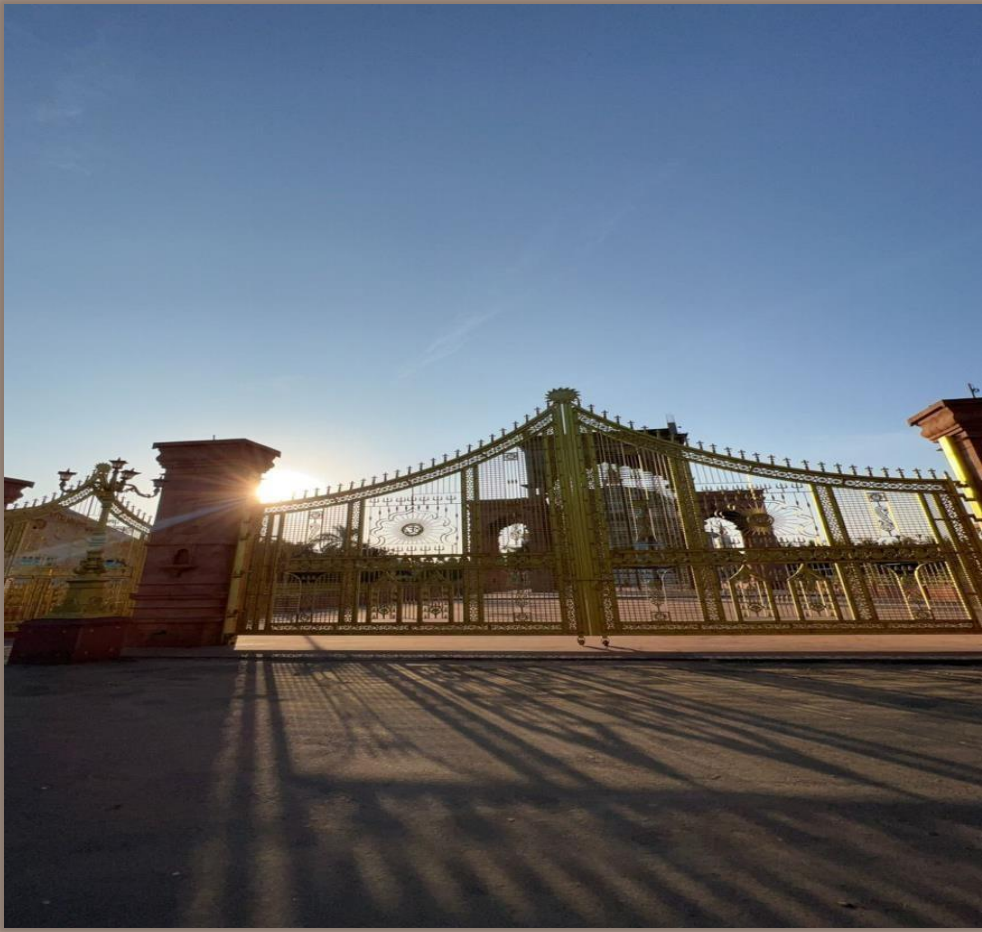


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PHOTOGRAPHY

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Captured By - Tejas Kawde



Captured By - Gauri Kulkarni



Captured By - Parul Damahe

If you change the
way you *look* at things,
the things you
look at change.



WAYNE DYER

BOOK REVIEW

THINKING, FAST AND SLOW

"Thinking, Fast and Slow" by Daniel Kahneman is a fascinating journey into how our brains make decisions. Kahneman breaks down thinking into two systems: System 1, which is fast and automatic, and System 2, which is slower and more deliberate. He shares stories and examples to show how these systems influence our everyday choices and sometimes lead us to make mistakes.

One key concept in the book is prospect theory, where Kahneman explains how we often behave differently when faced with gains versus losses. He explores the idea that our emotional responses to potential losses can shape our decisions more than logical thinking.

The book is written in a way that's easy to understand, using real-life situations to illustrate complex ideas. It encourages readers to reflect on their own thinking processes and recognize the biases that can impact decision-making. Overall, "Thinking, Fast and Slow" is an accessible and thought-provoking read that sheds light on the quirks of human cognition.

Kahneman's work is particularly insightful as it challenges the traditional view of human decision-making as purely rational. Through engaging narratives and practical examples, he demonstrates how cognitive biases and heuristics often lead us astray. The book not only enhances our understanding of why we make certain choices but also serves as a guide for making better decisions. By unraveling the intricacies of thinking, Kahneman empowers readers to navigate the complexities of their own minds, offering valuable insights applicable to various aspects of life, from personal relationships to professional endeavors. "Thinking, Fast and Slow" stands as an enlightening exploration of the human psyche, encouraging a more mindful approach to decision-making.

- By Suryakant Kulkarni (TY-A)

THE POWER OF HABIT

"The Power of Habit" by Charles Duhigg is a really interesting book about why we do the things we do every day. Duhigg explains that our habits—like brushing our teeth or grabbing a snack—are like a loop: there's a cue that starts the habit, then we do the routine, and finally, there's a reward. Using cool stories about people and companies, Duhigg shows how understanding this loop can help us change our habits for the better.

One cool idea in the book is about "keystone habits," which are small changes that can lead to big improvements in our lives. Duhigg also talks about the science behind habits and how our brains work, but he explains it in a way that's easy to understand.

The book is not just about breaking bad habits; it's also about creating good ones. Duhigg shares practical tips on how we can change our habits, whether it's at home, work, or in our communities. Overall, "The Power of Habit" is a helpful and fun book that shows us how understanding our habits can make a big difference in our lives.

One key takeaway from "The Power of Habit" is the idea that small changes can lead to big transformations. Duhigg explains how identifying the cues and rewards associated with our habits can empower us to make positive adjustments. By sharing real-life stories of people who successfully transformed their lives or organizations that improved their performance through habit changes, the book inspires readers to believe in their ability to make a difference. Duhigg's writing is engaging and relatable, making complex concepts accessible to everyone. Whether it's breaking a bad habit, adopting a healthier routine, or achieving personal goals, this book provides practical insights that encourage readers to take charge of their habits and, consequently, their destinies.

- By Ajinkya Wakhure (TY-A)

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**Building Bright Future
with **Green Commitment****

