THE EDITORIAL BOARD
MMM UNIVERSITY OF TECHNOLOGY
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The Editorial Board
–Beckoning Creati'wit'y

November Issue
Prismatic Pulse

#Universal Children's Day

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Message From The Editorial Board

Soft penumbra suffused November, forming a crepuscular palimpsest in which autumn's recalcitrant vestiges conjoined with lethean repose, the complete national withdrawal of the monsoons inscribed an irrevocable azure ledger across the firmament. Gentle mist catalogued the hedgerows in muted light, and footsteps answered with vespers of damp earth, while diaphanous fogs limned the Indo-Gangetic expanse, rehearsing palimpsestic erasures over furrow and thoroughfare. Fields, subsiding into post-harvest quiescence, exhaled the calculus of heliotropic sequestration as granaries hoarded embered irradiance, at riverine limina Chhath Puja converted stellar oblations into filial tributes of votive fervency, while Kartik Purnima with Dev Deepawali alchemised the Ganga into a phosphorescent lexicon. Guru Nanak Jayanti conduced psalmody and sustenance, yoking egalitarian ordinance to streets tinctured with hibernal augury, November reiterated its spectral cadence. Pushkar Camel Fair abraded desert silence with chromatic barter, skies desiccated by seasonal recession tempered agrarian temporality, littorals reclined beneath soporific zephyrs. Accords crystallised, polyphonic hopes germinated, and history inhaled a lucid interval of reparative becoming. Taurids and Leonids exscribed fugitive runes upon noctilucent vastitudes, till November consummated its elegiac cartography in mnemonic dusk.

November of 2025 turned on quiet hinges of progress and promise as India's women's cricket team won their first ICC World Cup, on November 02, 2025, defeating South Africa by 52 runs. Our country also took a step toward implementing clean-energy plans on November 05, 2025, by commissioning the National Green Hydrogen Corridor, which was a large-scale infrastructure initiative to decarbonise industries much faster and reinforce long-term energy security. On the global stage, diplomacy provided rare relief, with a United Nations mediated ceasefire becoming effective on November 07, 2025, easing tensions across West Asia, reopening channels for sustained negotiations. Within this unfolding, on November 18, 2025, the nation inaugurated a liminal infrastructure corridor, a fulcrum of industrial efflorescence. Subsequently, on November 20, 2025, Universal Children's Day inscribed institutions with sigils of childhood promise and futurity. By November 21, 2025, world potentates ratified a climate-finance compact, pledging a ten-year plan of coordinated capital. Markets oscillated, currencies equilibrated under fiduciary oversight, while forebeat culminated on November 24, 2025, as India's Test triumph over Australia secured the Border-Gavaskar Trophy, consecrating collective pride and subliminal cohesion within the national continuum of consciousness.

Amid autumn's transition, altered seasonal tempo, from October 08, 2025, to October 12, 2025, The Editorial Board organised Vagmita, an online poetry recital celebrating students' creativity and literary expression. Succeedingly, on November 15, 2025 and November 16, 2025, the institutional Alumni Meet was convened, reuniting alumni across sectors for solemn conclave and legacy. Thereafter, on November 24, 2025, the Annual Photoshoot was conducted by The Editorial Board, with final-year students from all departments convened in an orderly sequence under faculty supervision, while the Hon'ble Vice-Chancellor attended the proceedings, conferring imprimatur upon the moment. Finally, on November 26, 2025, Constitution Day, students intoned the constitutional preamble and chanted the national anthem. Thus the month congealed to chiaroscuro, and the past colloquized with the present.

November drifted in umbral cadence, argent susurrus attenuating beneath augural fenestrae of wan light, bequeathing a tempered afterglow before December's incipient efflorescence. The hyaline gloaming of oblique eternities retracted through ossiform corridors, and from November's cinereous diadem, the embryonic spirit quickened toward dormance. Vigil impinged upon pallid forges, while liminal interstices, tinctured with anticipatory lucence, prefigured crystalline advents of ephemeral plenitude, wherein frost and sol conspired. The terrestrial orb exhaled expectant rhythm as autumnal pellucidity waned. With autumnal pellucidity and a temperate glow, The Editorial Board unveils the November issue of Tiresia, offering our abiding benedictions for a season robed in noctivagant wonder.

bienvenidos!

MESSAGE FROM

Faculty Advisor

Dr. Virendra Kumar
Faculty Advisor

Madan Mohan
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of Technology,
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I take immense pride in presenting this resplendent edition of **Tiresia**, a reflection of the scholarly excellence and collective dynamism of our academic community. This volume embodies the spirit of innovation, perseverance and academic distinction that continues to define our University's journey toward excellence.

The 10th Convocation, held under the esteemed presidency of Hon'ble Chancellor Smt. Anandiben Patel Ji, marked another milestone in the University's progress. Degrees were conferred upon 1,473 scholars, celebrating their dedication and success. The ceremony was graced by Dr. V. Narayanan, Chairman of ISRO and Secretary of the Department of Space, Government of India, as Chief Guest. Shri Ashish Patel, Hon'ble Minister of Technical Education, and Shri Yugesh Dixit (Alumnus, 1987, EE), Executive Director of PGCIL, were Guests of Honour.

This year, the University achieved commendable success in the NIRF 2025 rankings released by the Ministry of Education, Government of India. It secured 60th position in Engineering, 68th in University, 83rd in Management, 99th overall and 23rd among State Public Universities. Internationally, the University ranked 292nd in South Asia, 901st in Asia and within the 1201–1500 band globally in the QS World University Rankings 2025. A CubeSat nanosatellite, led by Dr. Vijay Verma (Associate Professor, ECED), is being developed for launch with ISRO. Eight faculty members have been listed among the World's Top 2% Scientists in the Stanford University index for 2025.

To strengthen global collaboration, the University signed MoUs with two Vietnamese universities for research and exchange programmes, and another with PGCIL for constructing a new Girls' Hostel. The Wisdom on Wheels initiative, in partnership with SBI, promotes rural digital empowerment through a Rs. 90 lakh mobile digital lab. The institution achieved its highest ever placement package of Rs. 59 lakh, with 1,149 students placed overall.

The University also advanced community engagement through activities such as the NSS Blood Donation Camp with BRD Medical College and the NCC-NSS Cycle Rally, Save Nature: Today's Step for a Greener Tomorrow. **The Editorial Board** organized Vagmita, an online Hindi poetry event, and a Debate and Quiz Symposium.

Another significant milestone of the year was the Alumni Meet 2025, honoured by the presence of the esteemed Chief Guest Er. Anil Kumar, from the batch of 1985, Chief Managing Director at UPCL. There were various notable alumni, who were venerated in the event. **The Editorial Board** also organized the Annual Photoshoot of the final-year batch, marking a dignified closure to their time on campus.

This year reflects steady progress across academic and social fronts. I congratulate **The Editorial Board** for their dedication in bringing forth this edition, a continuing platform for learning and expression.

With best regards
Dr. Virendra Kumar
Faculty Advisor
The Editorial Board
MMMUT

Tête-à-tête
A talk with Mr. Nagesh Kumar Tripathi

Mr. Nagesh Kumar Tripathi, a distinguished alumnus of the Mechanical Engineering Department, MMMEC Gorakhpur (Batch of 1999), has exemplified dedication and professional excellence throughout his career. He has worked with some of India's leading organizations, including Larsen & Toubro (L&T), NTPC, Indian Ordnance Factories Service (IOFS), and Indian Railway Service of Mechanical Engineers (IRSME), before joining the prestigious Indian Railway Stores Service (IRSS). A high achiever, he secured All India Ranks 9 (2002), 8 (2005), and 2 (2006) in the Engineering Services Examination, an outstanding testament to his perseverance and intellect. Currently serving as Deputy Chief Materials Manager in Indian Railways, he continues to strengthen the Nation's infrastructural and operational efficiency. His journey reflects remarkable technical expertise and unwavering commitment to public service. **The Editorial Board** had the honour of interacting with Mr. Tripathi, tracing his inspiring journey from a young Malaviyan to a senior officer in one of the world's largest railway networks.

Q How were your initial days of college like, and is there any particular memory from those days that still brings you joy today?

A Hailing from Gorakhpur, I was primarily a day scholar, but my initial stay in Subhash Hostel followed by Raman Hostel allowed me to experience the best of both worlds. Every Monday, I brought lunch from home and truly enjoyed sharing it with my hostel friends, who always looked forward to it. Throughout the week, the hostel became my haven and on Saturdays I would head back home. The Pancham Samose and College Canteen were a pleasant hangout spot and I thoroughly enjoyed my college days. At that time, academic and career pressure was far lighter, and engineering was widely seen as a reliable path to success. All in all, it was an enriching experience.

Q What motivated you to choose a career in government service instead of the private sector?

A During our academic period from 1995 to 1999, government jobs were highly valued. The private sector, especially software field, was newly established and unstable. Many traditional industries were closing down, hence people developed an insecurity toward private jobs. I remember joining L&T, despite it not fully aligning with the conventional idea of an ideal career path at the time. Even today, government jobs provide a range of benefits that are broadly comparable to opportunities in the corporate sector. The stability, work–life balance, and benefits associated with government roles make them a strong option for many professionals. Financially too, the gap between government and corporate positions often narrows at senior levels, allowing individuals to choose based on their priorities.

Q What would you have wanted as a career opportunity, if not engineering services? Do you think any hobby or interest could have led you to a different career path altogether?

A I've always been a bit of a saintly person, and I used to meditate during college. I've often felt that once my responsibilities are over, I would like to spend some time in seclusion, focusing entirely on meditation. An alternative job profile for me, would be Civil Services, as it offers you the mandate and authority to serve people directly, which an engineering job fails to offer. Especially for students of MMMUT, this ingrained habit of hard work and strong work ethics provides the focus and perspective essential for success. Otherwise, the only alternative available to me would be to engage in forest meditation, which serves as a structured and disciplined means of withdrawing from external pressures.

Q What are some of the most technically challenging projects you have handled in your current role as Deputy Chief Materials Manager in Indian Railways?

A One of the major projects I oversaw was in Ahmedabad, where the high-speed rail line between Ahmedabad and Mumbai was under construction. Its main maintenance unit was being set up on the site that had earlier served as our store depot. I was responsible for the site and was entrusted with developing a new, state-of-the-art warehouse and shifting all operations there. Funds were not a constraint, so we were able to plan and implement the best possible facilities. During any engagement that brings you to Ahmedabad, you would be welcome to tour our warehouse, which operates as a fully modern and efficiently structured facility. Other than that, our work comes with

challenges almost every day and at senior levels, handling day-to-day complexities forms a standard and essential component of the job.

Q Could you share a memorable experience from your early posting or training days that still stays with you?

A In an industrial setup, safety is of paramount importance, as neglecting it can endanger both workers and the organization. When I was in the Indian Ordnance Factories, I worked there for about two to three years before joining the Railways. I was assigned to an explosive plant located in a place called Bhandara, a district near Nagpur. It houses the only factory in India that manufactures basic explosives like RDX and TNT. I was responsible for the maintenance of that plant. One day, I noticed that the air-conditioning system wasn't working properly and the temperature was improperly regulated. I instructed the team to shut down the plant, as it was unsafe to continue operations. The materials involved are extremely sensitive, with their boiling points around 28 to 29 degrees Celsius. Even a small spark could cause a massive explosion. Despite my repeated written warnings, the production pressure took over, and the instructions were overlooked. I happened to be on leave at that time, and an accident did occur, leading to casualties. That incident reinforced my belief that safety should never be compromised in any industrial environment, no matter the circumstances or pressure. Wherever you work, whatever you do, safety must always be the top priority.

Q Is there a particular book you would suggest that every young engineer should read, which can truly guide their professional learning?

A One book I highly recommend is "**Thinking, Fast and Slow**" by Nobel laureate Daniel Kahneman. It explains how we think and make decisions in a highly relatable manner, which is particularly valuable for engineers who encounter such situations routinely. It significantly sharpens your perspective and enables you to approach problems with far greater clarity. In essence, it provides a robust and enduring framework supporting clearer analysis and sound judgement in complex situations.

Q For students aiming to pursue a career path like yours, what guidance would you offer in terms of recommended roadmap, and what mistakes from your own experience should they be cautious to avoid?

A If you're aiming for a corporate job, focus on improving your communication skills and remain alert to opportunities, even if that means taking an additional course to strengthen your profile. By your sophomore or pre-final year, try to decide on a general direction like engineering services, a PSU, higher studies, or the private sector, and plan your efforts accordingly.

For government services, exam performance is what truly counts. Engineering Services is also an excellent and respected option. If you plan to pursue an MBA, begin strengthening your English and communication skills early while also preparing for exams such as the CAT. For those considering opportunities abroad, it is advisable to start working toward the GRE as well. A clear sense of direction, supported by consistent effort and timely preparation, will ensure you progress with confidence toward the career path best suited to you.

Mr. Nagesh Kumar Tripathi with his team

Colloquy

Q How was your experience as an alumnus of MMMUT?

A I joined MMMUT in 1986, when the Department of Computer Science and Engineering was merely five years old, with an intake of just twenty students. At that time, MMMUT was still a developing institution, and government engineering colleges were limited in number. The quality of teaching was exceptional, though campus placements were limited. Only a few companies visited each year, in our batch, for instance, UPDESCO recruited just two students. Nevertheless, most graduates went on to build successful careers through public sector opportunities, off-campus recruitment, or by qualifying in competitive examinations such as GATE. After completing my B.Tech, I too qualified GATE and pursued my M.Tech at the SGS Institute of Technology and Science. My professional career began as a Lecturer at BIET, Jhansi, where I served from September 19, 1992, to June 10, 1996. I later joined HBTI, Kanpur, and continued there until February 24, 1999. The very next day, on February 25, 1999, I returned to my alma mater, MMMUT, as an Assistant Professor in the Department of Computer Science and Engineering, marking a deeply fulfilling homecoming to the place where my academic journey first began.

Q Having studied at MMMUT and later returned as a faculty member, what differences did you notice upon coming back to the college for the first time?

A During our time, education was purely academic, with regular classes and solemn teachers. Teachers had no administrative burdens and focused solely on teaching, ensuring personalized attention to every student. I became a Professor in December 2015,

PROF. RAKESH KUMAR
HoD, Department of Computer Science & Engineering, MMMUT

and in July 2025, I began my second term as Head of the Department of Computer Science and Engineering. In December 2024, the CSE Department had only seven faculty members. To address this, the Hon'ble Vice-Chancellor promptly appointed 25 new faculty members, thus allowing us to expand the scope of what we could offer. My focus as HoD is on developing laboratories through five upcoming Centres of Excellence, approved by the Finance Committee. These include AI, Cybersecurity, and IT Labs, state-of-the-art facilities comparable to IITs. The CSE Department will also offer seven minor degree programs open to students from other branches, like EE students opting for AI/ML or Cybersecurity minors, to make them industry-ready. Moreover, micro-specializations will allow

Designation: Professor & Head, Department of Computer Science & Engineering

Qualification: Ph.D. (IIT, Roorkee), M.E. (SGSITS, Indore), B.E. (MMMEC, Gorakhpur)

Interests: Mobile & Distributed Computing, QoS Routing, MANETs, Sensor Networks, Network Security

Experience: 30+ years, have served as DoSA, CSA Chairman, Chief Warden, and on committees like the Board of Management, Academic Council, and Finance Committee, along with holding the position of Dean Research and Development and Professional Practices

Awards: Best Research Paper – ICIP 2007 (Bangalore)

With over three decades of distinguished service in teaching, research, and academic leadership, Prof. Rakesh Kumar has been a pivotal figure in the growth and transformation of the Computer Science & Engineering Department at MMMUT, Gorakhpur. A scholar with a Ph.D. from IIT Roorkee, he has made notable contributions to the fields of mobile and distributed computing, QoS routing, and network security, establishing a strong research foundation within the department. His pioneering work on MANETs and Internet integration has received national recognition and continues to influence both academic inquiry and technological application.

Throughout his career, Prof. Rakesh Kumar has combined scholarly depth with administrative vision, steering numerous academic reforms, workshops, and funded research projects. His efforts in curriculum design, faculty development, and student mentorship have strengthened the department's academic ecosystem and promoted a culture of research and innovation. As Head of the CSE Department, he remains deeply committed to advancing the department's capabilities, both in infrastructure and intellectual capital while nurturing future engineers to lead with knowledge, ethics, and purpose.

CSE students to specialize in AI/ML, Data Science, Cybersecurity, or Software Engineering from the second year onwards. The CSE Department is launching new clubs and student bodies focused on AI, Cybersecurity, and Hackathons, open for national-level participation to enhance student exposure and skill development.

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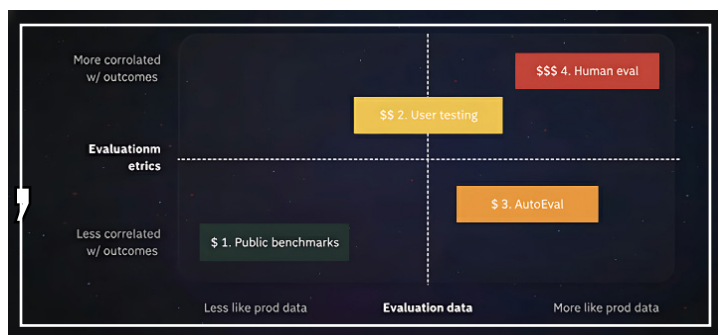
Q How do you plan to promote research and publications within the university while also nurturing students to become not only skilled engineers but socially responsible citizens who can follow a similar path of excellence?

A An institution's true strength lies in its students and research output, which together define its quality. Rankings like NIRF emphasize research, innovation, and external funding. Our faculty have secured funding for various projects. The Government of India now offers free patent filing facilities, which our university has availed, and the Academic Council has approved incentives to encourage faculty and student innovation. At the same time, I believe social service is equally vital. In today's materialistic world, anxiety and depression often arise from losing touch with our cultural roots. True happiness lies not in wealth or position but in serving others. As HoD, I view leadership as collaboration, every faculty member is a link in the same chain, and together we grow stronger. Since taking office in July, I've witnessed a positive transformation through teamwork and shared purpose.

Q How do you think placement scenarios have changed?

A Placements in CSE have seen ups and downs over the past 10 - 15 years. While earlier they weren't strong, the last two years have shown consistent improvement. Globally, most employment opportunities across CSE, IT, and other affiliated engineering fields are now centered in the IT sector. Good jobs will never be denied to students who have the skills in the contemporary industry requirements. The situation is now a lot different; one needs to adapt in order to obtain and keep a job. With widespread layoffs at Google, Amazon, Microsoft, Salesforce, TCS, Infosys, and HCL, due to AI automation, those unaware of AI's role may struggle. ChatGPT, though primitive today, is already powerful and will evolve immensely in the next few years. AI does not threaten adaptable people, on the contrary, it makes them more productive. ChatGPT and other AI tools have made coding faster and more efficient; however, students must still think critically and use their own understanding to apply these tools effectively, rather than becoming dependent on them. In essence, the future belongs to those who view AI as a partner rather than a competitor.

Q What kind of legacy do you aspire to leave behind as the Head of Department?

A My vision is to establish five Centres of Excellence while strengthening research, laboratories, and student skill development. I aim to increase the number of students placed in product-based companies and attract more funded research projects. Over the next 3 - 4 years, I envision our department achieving national recognition for its quality placements, advanced laboratories, strong academic foundation, and culture of innovation. Our goal is to nurture not just competent engineers but compassionate, skilled, and socially responsible individuals.

Q What message would you like to share with a first-year student who has just joined the university and is still uncertain about the path ahead?

A Parents and guardians work tirelessly and make countless sacrifices to shape their children's future. Students should honour these efforts by making choices rooted in integrity and wisdom. True success lies not merely in wealth or titles but in meaningful contribution to society. It is essential to recognize personal strengths and weaknesses early and begin working toward self-improvement. In today's world, success is defined less by degrees and accolades and more by practical skills and real-world relevance. First-year students should remain curious, seek guidance from mentors, and not fear failure, as it is often the starting point of growth. With patience and consistent effort, even small beginnings can lead to remarkable achievements, regardless of the institution one comes from. Your origins launch the journey, but your character defines the destination.

JUL 31 The **Association of Civil Engineers** held its **'Induction Drive'** from **July 31, 2025** to **August 02, 2025**, consisting of a Written Round and a Personal Interview. With strong analytical insight and effective problem-solving aptitude, the members are well-positioned to contribute to initiatives that foster academic excellence and innovation in Civil Engineering.

AUG 01 The **Hack With India** conducted its **'Induction Program'** from **August 01, 2025** to **August 03, 2025**, comprising an online application, quiz, and final interview. The drive shortlisted students with technical proficiency and a collaborative mindset, aiming to build a dynamic community of creators within the University.

AUG 02 The **Cultural Synod** organized its annual **'Induction Drive'** from **August 02, 2025** to **August 03, 2025**, to discover students with a strong creative vision and an aptitude for artistic expression. Through engaging assessments and interviews, the Synod welcomed individuals eager to celebrate culture and actively enrich campus life through diverse art forms.

AUG 03 The **Coders & Developers Club** successfully concluded their flagship event **'Game of Codes'** on **August 03, 2025**. The event assessed programming proficiency and recognized top-performing participants for their excellence, fostering a culture of competitive coding, skill enhancement, and continuous learning among students.

AUG 09 **AI Spark** conducted its **'Induction Process'** from **August 09, 2025** to **August 14, 2025**, to bring on board motivated second-year students with a keen interest in artificial intelligence. The selection involved an online application, group discussion, and final interview, shortlisting individuals driven to explore innovative AI solutions and actively advance the club's technological vision.

AUG 10 **Computer Society of Software Engineers** completed its three-stage **'Induction Process'** from **August 10, 2025** to **August 15, 2025**. The drive featured resume screening to verify candidate eligibility, hands-on technical rounds to rigorously assess domain knowledge and skills, and managerial interviews specifically focused on leadership potential.

BUZZ

AUG 12 — **The Editorial Board** organized a **'Debate and Quiz Competition'** on **August 12, 2025**, as per the instructions of the **Governor's House**. The event celebrated the spirit of democracy, intellectual curiosity, and critical thinking. It provided a dynamic platform for participants to express their views confidently, exchange ideas, and demonstrate their knowledge.

AUG 13 — **Google Developer Group** conducted its **'Induction Drive'** from **August 13, 2025** to **August 15, 2025**, for second-year students, aiming to identify technically skilled individuals. The event welcomed a new batch of enthusiastic learners ready to innovate and contribute to the developer community.

AUG 18 — **University** celebrated its **'Convocation Week'** from **August 18, 2025** to **August 21, 2025**. The 10th Convocation Ceremony featured the launch of the 56th edition of the annual university magazine, "Malvika", with great grandeur and enthusiasm. The event was graced by the esteemed presence of Hon'ble Chancellor Smt. Anandiben Patel Ji, Vice-Chancellor Prof. J. P. Saini Sir, and Dr. V. Narayanan, Chairman, ISRO.

AUG 19 — The **Society of Automotive Engineers** organized **'Cherished Snaps'**, a week-long photography competition conducted from **August 19, 2025** to **August 25, 2025**, providing a creative platform for students to express their perspectives and storytelling skills through the lens. The event captured moments of imagination and innovation, highlighting the artistic side of engineering minds.

AUG 12 — The **NCC, MMMUT, Gorakhpur** organized a **'Bicycle Rally'** on **August 12, 2025**, to promote environmental sustainability and encourage eco-friendly habits among students. The event highlighted the importance of collective effort in building a healthier and greener future, while spreading awareness across the campus and nearby communities.

AUG 14 — **NSS, MMMUT, Gorakhpur** concluded its freshmen orientation program **'OIPNAS'** with a valedictory ceremony held on **August 14, 2025**, recognizing the contribution of faculty members and NSS volunteers. This program familiarized first-year students with the University's culture, values, and community service initiatives.


AUG 22 — **NSS, MMMUT, Gorakhpur** in collaboration with **BRD Medical College, Gorakhpur** organized a **'Blood Donation Camp'** on **August 22, 2025**. Students and faculty members actively participated, promoting compassion and community service. The drive witnessed an enthusiastic response, with dozens of voluntary donors contributing to a noble cause.

AUG 29 The **Training and Placement Cell**, **MMMUT** organized **'Alum Speak Series 6'** on **August 29, 2025**, featuring alumni from various domains. They shared valuable career insights, guiding students on skill development and industry readiness. The interactive session emphasized the importance of adaptability, continuous learning, and networking in the modern workplace and rapidly evolving professional landscapes worldwide today.
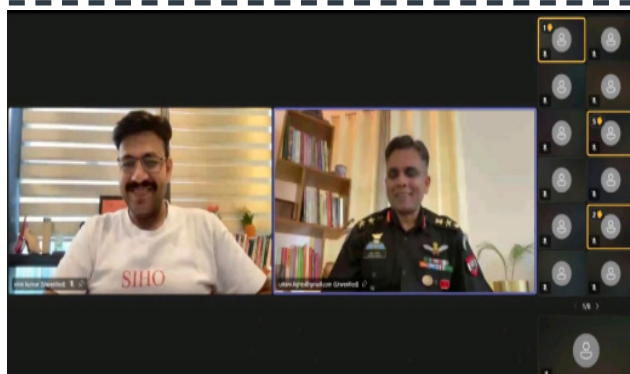
SEP 17 **NSS, MMMUT, Gorakhpur** organized **'Swachhotsav'**, a Cleanliness and Awareness Drive from **September 17, 2025** to **October 02, 2025**, under the **Swachhata Hi Seva (SHS)** Campaign of the Government of India. The event encouraged environmental awareness and active community participation, featuring collective Shramdaan Activity "**Ek Din, Ek Ghanta, Ek Saath**" inspiring change.

SEP 19 **MMMUT-Reso** organized the **'SIH Internal Hackathon 2025'** on **September 19, 2025**, showcasing innovative project ideas and technical excellence among participants. Outstanding teams were felicitated for their problem-solving approach, innovation, and potential to represent the University in national-level hackathons and competitive technology platforms nationwide.

SEP 24 **FLUX** conducted its **'Induction Drive'** for third-year students on **September 17, 2025**, and for sophomore students from **September 23, 2025** to **October 09, 2025**. The drives aimed to identify inquisitive and research-oriented minds, with selected members set to engage in workshops and technical sessions promoting innovation and scientific growth.

OCT 04 The **Society of Automotive Engineers (SAE), MMMUT** organized **'Off-Road Burnout'** from **October 04, 2025** to **October 05, 2025**, featuring all-terrain vehicle racing and design challenges. Participants showcased teamwork, engineering skills, and endurance throughout the event. The competition fostered practical learning and encouraged students to apply theoretical knowledge to real-world automotive challenges.

BUZZ

OCT 05 — **NSS, MMMUT** organized **'AAYANSH '25'**, a stationery donation drive from **October 05, 2025** to **October 10, 2025**. Donated items were distributed to the children of **Malaviya Shiksha Niketan** on **October 15, 2025**. The initiative aimed to support underprivileged students and encourage the value of education among young learners. It fostered compassion and social awareness among volunteers, reinforcing the spirit of community service.

OCT 08 — **Electrical Engineers' Legation** hosted **'Labyrinth'** from **October 08, 2025** to **October 09, 2025**, a three-round event that seamlessly combined intellect and creativity. Participants engaged in a quiz, followed by a treasure hunt that promoted teamwork and quick thinking. The event concluded with an interactive challenge round, fostering collaboration and problem-solving mindset among participants.

OCT 08 — **The Editorial Board** hosted **'Vagmita 2025'**, an online poetry recital competition held from **October 08, 2025** to **October 12, 2025**. Students showcased creativity and expression through poetry, celebrating literary art on campus. The event witnessed participation from students across various colleges with teachers, renowned poets, and other prominent literary figures.

NOV 15 — **University** organized the **'Alumni Meet'** from **November 15, 2025** to **November 16, 2025**, bringing together alumni from the 1975, 2000 and 2015 batches. The event celebrated their journey, achievements, and long-standing connection with the university. It provided a valuable and meaningful platform for networking, sharing memories, and strengthening the bond between the alumni and the institute.

NOV 24 — The **'Annual Photoshoot'** was organized by **The Editorial Board** on **November 24, 2025**, with great enthusiasm. The event brought together final-year students from various departments, marking a memorable milestone in their academic journey. The occasion was graced by the esteemed presence of Hon'ble Vice-Chancellor Prof. J. P. Saini Sir. The photographs captured will be featured in Malvika, celebrating the spirit and achievements of the graduating batch.

Coruscant Computation

Where electrons fade, photons ignite – the next horizon of human insight.

For decades, the engine of progress has run on Moore's Law, Gordon Moore's 1965 observation that transistor density on a microchip would double approximately every two years, a forecast that defined the modern computing era. This relentless miniaturization drove unprecedented advancement, but it is now pressing against the physical frontiers of silicon. As transistors shrink to the atomic scale, they face performance-killing quantum effects and energy leakage. To outpace these electronic bottlenecks, researchers are venturing into a new era of computation, one based not on electrons, but on light itself: photonics.

Photonics, the processing and transmission of information through photons, is not a new idea; its theoretical roots trace to the 1960s. For decades, however, its use was confined to specialized applications like fiber optics. The pivotal breakthroughs for computation arrived in the 2000s with the maturation of silicon photonics. Silicon itself is poor at generating and detecting light, but landmark research demonstrated

crucial workarounds. Researchers, including those at Intel and academic institutions, successfully integrated germanium onto silicon to create high-speed photodetectors (receiving light). Even more critical was the development of high-speed silicon modulator devices that encode electrical data onto a beam of light, demonstrated by 2004. These innovations proved that all the key optical components could be built using the industry's existing, mature silicon manufacturing processes, opening the door for mass-produced Photonic Integrated Circuits (PICs). Photonics is no longer a lab experiment and is actively being integrated into high-performance systems. Companies like Google are implementing photonic interconnects within their data centers to transfer massive datasets between servers with incredible speed and efficiency. Concurrently, specialized startups like Lightmatter and Ayar Labs are building photonic processors designed to execute large-scale artificial intelligence tasks using a fraction of the energy required by today's GPUs. This technology is also foundational

for next-generation systems; the immense bandwidth demands of 6G networks necessitate photonic links, while many quantum computing architectures depend on photonics for stable qubit control and communication.

The physical advantages driving this shift are fundamental. Electrons traveling in copper wires collide with atoms, producing resistive heat and limiting speed. By comparison, photons travel at the speed of light within optical waveguides with negligible resistance. This property also enables massive parallelism. Multiple data streams can be transmitted simultaneously down a single optical-fiber at different frequencies of light, a   process called wavelength-division multiplexing (WDM). Furthermore, since photons are massless and charge-neutral, they do not generate the waste heat that plagues electronic systems, a critical consideration in data centers where cooling can account for nearly half of all energy consumption. Despite these profound benefits, constructing an entirely photonic computer remains a formidable pursuit. A primary challenge is integration; while silicon is an excellent foundation for waveguides, other materials like indium phosphide (InP) are more efficient at generating light. Combining these disparate materials on a single chip is technically complex and expensive. Miniaturization is another hurdle, as optical components are physically constrained by the wavelength of light they use, making them inherently larger than today's tiniest transistors. Finally, the global chip industry is built on silicon electronics; transitioning multibillion-dollar fabrication plants to photonic production would require massive, systemic investment.

The following age of computation will not be a product of a systematic displacement of electronics, but a product of their rational union with photonics. This hybrid model represents an evolution in chip design, creating an architecture that leverages each technology

Wafer Closeup seen through DUV Lens
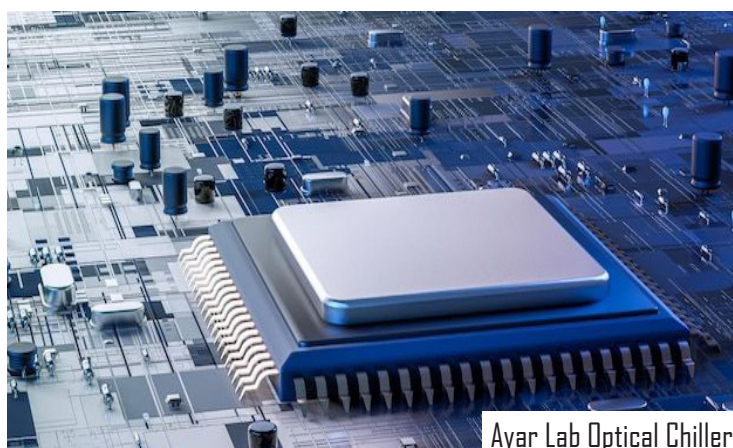
Ayar Lab Optical Chiller
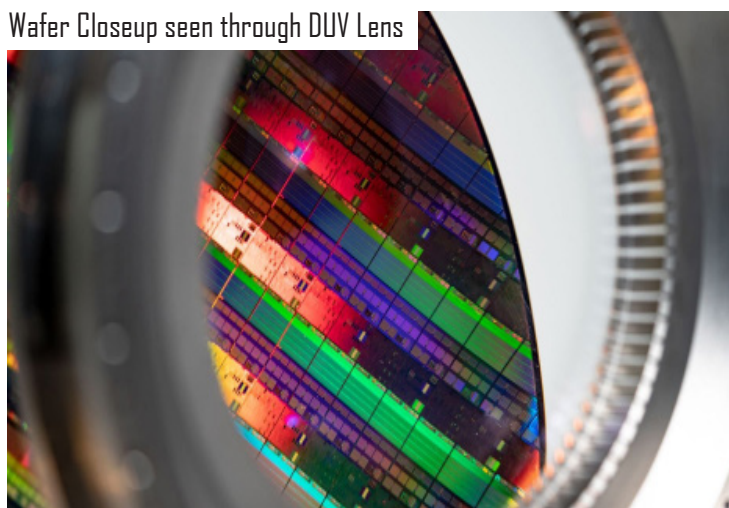
for its inherent strengths. Electrons will continue to dominate intricate logic and memory storage, while photons take over the task they were born for: the high-speed, parallel transport of data. This synergistic future redefines the very meaning of performance. It charts a new path forward, one that looks beyond the simple metric of transistor density and instead measures progress by communication efficiency, processing speed, and sustainability, ensuring the spirit of Moore's Law continues in a new form. Industry roadmaps are already reflecting this shift; chip designers are drafting co-design workflows that place photonic fabrics alongside transistor logic. Standards bodies and foundries are beginning to define process design kits (PDKs) and testing protocols for mixed photonic-electronic manufacturing. Software stacks are evolving too compilers, runtime systems and interconnect protocols must understand optics' latency, bandwidth and nonlinear behaviors. Energy-aware architects are designing systems that move data to light whenever long-distance or high-bandwidth transfers dominate the power budget. At the same time, materials science continues to hunt for better on-chip light sources, low-loss waveguides and scalable heterogeneous integration techniques. These combined advances lower the cost and technical risk of adoption, making photonics an increasingly practical complement to electronics rather than a distant ideal. Economic forces from hyperscalers seeking efficiency to national strategies aiming for technological sovereignty will accelerate investment in photonic infrastructure. The transition will be incremental and heterogeneous, driven by workloads that most benefit from optics. When it arrives, the hybrid photonic-electronic era will offer not only faster computation, but a more sustainable and resilient foundation for the next waves of digital innovation.

Energy Enigma

Civilization rises on currents of energy, yet every surge reminds us that creation and cost are bound together.

When the world shines with progress, it's easy to overlook the darkness that comes with it. Energy has been the lifeblood of our civilization. It powers our inventions, raises buildings that reach the sky, and lights homes that once lived in darkness. However, the same energy that drives us forward also comes with a price. It has damaged the planet that supports us. We have witnessed oil spills in oceans, turning vibrant waters into still, lifeless surfaces. We have seen nuclear disasters wipe out entire cities and harmful gases take the lives of countless people. These are not just events from the past. They serve as ongoing reminders of the delicate balance between our goals and the world we inhabit. Throughout history, energy disasters have been harsh reminders that our control is often an illusion. Moments of comfort and progress can vanish in an instant due to sudden crisis. The Chernobyl disaster in 1986 changed a once-thriving town into a haunting reminder of radiation and loss. Decades later, the Deepwater Horizon oil spill in 2010 released millions of barrels of crude oil into the Gulf of Mexico, poisoning waters that had supported countless lives. These tragedies did more than ruin ecosystems. They weakened trust in progress, technology, and the idea that the future would always be safer than the present.

For those who experienced such disasters, the pain did not go away when the flames died down or the waters subsided. Fear hung in the air, influencing how they lived, worked, and even dreamed. Children grew up flinching at the glow of refinery lights or the sound of sirens. Sounds that once meant safety now brought fear. The disaster might disappear from the news, but its memory lingers an invisible presence that never really fades. Whenever the world is experiencing such a tragedy, it vows to learn, to change, to do better. Governments hurry to rewrite safety codes. Corporations issue statements and plans full of pledges and numbers. For a time, the world is convinced that mastery over the forces of nature has been achieved. Then, sure enough, another failure occurs. A valve leaks. A circuit overheats. A system breaks. And with it, something deeper breaks too: the quiet trust that progress is safe, that our power can ever be entirely contained. Every time control slips, it is not just machines that fail,

but the illusion that we were ever their masters.

Sustainability, in its truest sense, is the practice of meeting our current needs without depleting the resources and balance that future generations will rely on. We should use energy wisely, design durable products, and prefer renewable resources over those that are running out. It encourages industries to innovate in a responsible way and individuals to consume thoughtfully. At its heart, sustainability is a mindset. It measures progress not just by growth but by how well we protect what makes that growth possible. There is no one way to define sustainability. Every community has its own story. A town rebuilding after an oil spill dreams differently from one recovering after radiation exposure. Their wounds are different, yet both share the same instinct to survive. But survival alone is not enough. When we change without awareness, we only get by. When we change with understanding and purpose, we grow. True progress is not about how fast we move, but about how carefully we shape each step forward.

The Energy Enigma is not only a tale of fuel or technology, but also the ethical price of the progress itself. The history of humanity began with a spark, the first fire which was warming our ancestors and chasing away the darkness. The same spark is lit in reactor, turbine and grid; it illuminates our cities and characterizes our contemporary lives. As long as we are moving forward, and the force in our hands is increasing, so must our humility. The more power we have, the more responsibility we must take. Fear of environmental collapse is often dismissed as an overreaction, but it may be the most reasonable response to the crisis we face. Unchecked fear can paralyze action and spread hopelessness and denial. However, when we understand it clearly, fear can become a strong motivator. It reminds us of limits we have ignored, such as rising sea levels, vanishing forests, and polluted air. It encourages scientists to develop cleaner technologies, lawmakers to enforce accountability, and citizens to change habits that

A Lithium Mine

harm the planet. "Fear is not our enemy, it is a signal." It warns us, but it also guides us, depending on how we choose to respond. As the world shifts toward green energy, there is a lot of optimism, and it's deserved. Renewable sources like solar, wind, and hydroelectric power promise cleaner air, lower emissions, and a move away from fossil fuels. They give us hope of powering progress without harming the planet. However, this transition has its costs. Wind farms need large areas of land. Solar panels involve resource-heavy manufacturing. Battery production relies on mining rare metals that impact ecosystems and communities. Renewable energy is a step forward, but we must pursue it responsibly. The real challenge is not only changing our power source but also ensuring that the push for clean energy doesn't repeat the same patterns of exploitation it seeks to replace.

If there is to be a new revolution, it must begin not in laboratories or parliaments but in perspective. It needs to define what power means. Being powerful should not mean to consume more, but to understand more, to restrain more, and value what we already have. The true measure of our advancement will not be the number of megawatts we generate but the wisdom with which we choose to limit ourselves. Perhaps the story of humanity will not be written in the lights that shine from our cities but in the shadows, we refuse to ignore. We may remember civilization not by how brightly it burned, but rather how gently it learned to glow. If we can find strength in moderation and courage in restraint, then we might yet learn to wield power without being consumed by it.

Progress means little if it scorches the world that gives it meaning. The choice in front of us is no longer just about technology, but about responsibility. We can light our cities, run our machines, and fuel our dreams, but only if we learn to protect the land that supports them.

Energy Sustainability

inSights

TECH (vertical title, left margin)

```c
#include <stdio.h>
int encrypt(int n) {
    return (n * 3 + 7) % 26;
}

int main() {
    char msg[] = "SECRETMESSAGE";
    for (int i = 0; msg[i] != '\0'; i++) {
        msg[i] = 'A' + encrypt(msg[i] - 'A');
    }
    printf("%s\n", msg);
    return 0;
}
```

What is the output of the above C program?

COMPUTER SCIENCE
AND ENGINEERING

A distributed database replicates data across 5 nodes with 3 replicas each. If quorum read-write consistency requires majority overlap, what is the minimum nodes required for consistency?

INFORMATION TECHNOLOGY

A White Gaussian noise $w(t)$ with zero mean and power spectral density N_o, when applied to a first-order RC low-pass filter produces an output $n(t)$. At a particular time t= t_k, what is the variance of the random variable $n(t_k)$?

ELECTRONICS AND
COMMUNICATION ENGINEERING

A simply supported beam of length L is subjected to a varying distributed load $\sin(5\pi x/L)$N/m, where distance x is measured from the left support. Find the magnitude of the vertical reaction force in N at the right support?

CIVIL ENGINEERING

Seawater is passed through a column containing a bed of resin beads under incipient fluidization conditions. The density of seawater is 1025 kg/m³, and the density of the resin beads is 1330 kg/m³. The diameter of the resin beads is 50 μm. The void fraction of the bed at the onset of fluidization is 0.4. The acceleration due to gravity is 9.8 m/s². Determine the pressure drop per unit length of the bed at the onset of fluidization (in Pa/m), rounded off to the nearest integer.

CHEMICAL ENGINEERING

A 300 V, separately excited DC motor with armature resistance of 0.8 Ω and constant field excitation drives a load under steady-state conditions. The load torque is proportional to the speed. The motor draws a current of 25 A when running at a speed of 1200 rpm. Neglect frictional losses in the motor. Find the speed (in rpm) at which the motor will run if an additional resistance of value 5 Ω is connected in series with the armature, rounded off to the nearest integer.

ELECTRICAL ENGINEERING

At steady state, 500 kg s⁻¹ of steam enters a turbine with a specific enthalpy of 3500 kJ kg⁻¹ and a specific entropy of 6.5 kJ kg⁻¹K⁻¹. The steam expands reversibly in the turbine to the condenser pressure. Heat loss occurs reversibly in the turbine at a temperature of 500 K. If the exit specific enthalpy and specific entropy are 2500 kJ kg⁻¹ and 6.3 kJ kg⁻¹ K⁻¹ respectively, find the work output from the turbine in MW (in integer).

MECHANICAL ENGINEERING

Winner of the Tech inSights of Tiresia Volume 16, Issue 3 is Akash Singh, B.Tech 3rd Year, ECE. Rest of the answers were either late or unsatisfactory.

Consecration

PLATES OF IDENTITY

The Mursi of Ethiopia, a Surmic pastoralist group in the Omo Valley, are known for distinctive lip plates, body art, and rites symbolizing status and identity. These traditions reflect their rich heritage and resilient communal values.

~Mayank Sharma, CE 2nd Year

BRAVERY IN MOTION

The Hamar tribe's cattle-jumping rite symbolizes courage, maturity and lasting bonds of love and loyalty. It marks a young man's passage into adulthood, celebrated through music and tradition.

~Anurag Banerjee, CSE 2nd Year

ANCESTRAL HUES

The Karo people of Ethiopia embody artistry through symbolic body painting and adornment expressing identity status,and deep connections to beauty, ancestry, and community.

~Aditi Mishra, ECE 2nd Year

RESILIENT TRADITION

The Banna tribe of Ethiopia upholds a rich agro-pastoral life, where stilt walking adornments, and vibrant festivals express strength, kinship, and harmony with nature.

~Shambhavi, IT 2nd Year

We invite all students to explore the sacred traditions, rituals, and cultural expressions that define humanity's diverse heritage. Draft a concise description of a cultural practice that inspires awe or reverence and submit it to literaryedb@mmmut.ac.in. The most compelling entries will be published in the next issue of Tiresia.

पल्लवन

अंतर्मन में पल्लवन है चेतन का अलंकार,
जीवन रण से जन्मता सृजन का आधार।

पल्लवन वह शाश्वत नियम है, जिसके विधानानुसार जीवन की हर विषम परिस्थिति किसी नए सृजन की ओर अग्रसर होती है। यह केवल प्रकृति में ही नहीं, अपितु मानव अस्तित्व में भी उतनी ही गहराई से घटित होता है। जैसे अंधकारयुक्त भूमि के गर्त में पड़ा बीज भी अपने अंदर एक विशाल वृक्ष की संभावनाएं समेटे होता है, वैसे ही मनुष्य भी अपने अनुभवों, संघर्षों और चिंतन से प्रबोधन को प्राप्त कर स्वयं को नए रूप में पुनर्स्थापित करने का सामर्थ्य रखता है। इन अंतर्निहित प्रत्याशाओं को पहचानना व उनका अनुप्रयोग ही पल्लवन है। वस्तुतः यह अंतःकरण के निरंतर नवीनीकरण का प्रतीक है। इसमें केवल विचारों का अंकुरण नहीं, अपितु यह आत्मिक, सामाजिक व जागतिक तीनों स्तरों पर विकास का संकेत देनेवाला है। जब व्यक्ति अपने अंतर्मन में विकास को स्वीकार कर उसे कर्म के रूप में व्यक्त करता है, तब अन्तर्जागरण संभव होता है।

मधुमास में समस्त वृक्ष पर्णपात कर अपनी मोहकता को पल्लवन के द्वारा ही व्यक्त करते हैं। ऋतु परिवर्तन के इस मधुर संगम में प्रकृति सृष्टि के नए अध्याय लिखती है। यह परिघटना सूचक भी है कि क्षय के बाद ही नवनिर्माण का द्वारोद्घाटन होता है, हर अंत एक नई शुरुआत का संकेत देता है और

यही सनातन नियम है। परंतु पल्लवन भी एकाएक फलीभूत नहीं होता; उसे शीतकालीन रात्रि के सदृश विपत्तिपूर्ण समय से होकर गुज़रना पड़ता है। जब विषम परिस्थितियों से सन्त्रस्त मन में अंतर्दृष्टि का उद्भव होता है, तभी वह भावोत्पत्ति अपने वास्तविक स्वरूप में प्रकट होती है। मानव अपने अनुभवों, संघर्षों और साधना के माध्यम से स्वयं को और अपने परिवेश को रूपांतरित करता है। यही रूपांतरण अंततः उसे आत्मिक शांति व सामाजिक हित की दिशा में अग्रसर करता है।

संगीत, काव्य व नृत्य आदि सभी ललित कलाएं मन के पल्लवन का ही फल हैं। कलाकार के अंतःकरण में संवेदना और कल्पना के सम्मिश्रण से रुपानुभूति का अंकुरण होता है। यह अंकुर गायन, वादन, कविता, चित्रकारी आदि सुरम्य कलाओं के रूप में दृश्यमान होता है। कला में पल्लवन केवल सौंदर्य की अभिव्यक्ति नहीं, बल्कि आत्मा की गति है, जो समाज में नए विचार, नई भावनाएँ और नई दृष्टि का संचार करती है। भारतीय संगीत में प्रातःकालीन राग भैरव भी इसी आंतरिक जागरण का प्रतीक है। इसके गंभीर एवं स्थिर स्वरों में मन की निगूढ़ निवर्तनाएँ शमित होकर नवीन चेतना का उदय करती हैं, मानो अंतर्मन में पल्लवन का प्रथम स्पंदन उभर रहा हो। इसी भाव का विस्तार तब होता है जब मनरूपी पय

का मनन से मंथन होता है, और तत्पश्चात साधक कालांतर में अपनी सिद्धावस्था में शुद्धता की चरम सीमा और पूर्ण विवेक को प्राप्त कर लेता है। यह साधना का वह अंतिम चरण है जहाँ विचार अनुभव में रूपांतरित होता है। मनुष्य का आत्मसाक्षात्कार भी इसी प्रस्फुरण का परिणाम है। यह वह क्षण है जब अंतर्मन में बोध का मूल, ज्ञान के रूप में अंकुरित होता है। यह चिंतन से नवीन प्रवर्तन तक की यात्रा का सेतु है, जिसके द्वारा आत्मा अपने सत्य से साक्षात्कार कर अपने जीवनयात्रा का अर्थ प्राप्त कर लेती है।

जब किसी चित्त में पल्लवन घटित होता है, तो वह केवल विचारों की जागृति नहीं, बल्कि सम्पूर्ण दृष्टिकोण का रूपांतरण होता है। पुनर्रोपण चित्त के भीतर नई ऊर्जा, स्पष्टता और आत्मविश्वास का संचार करता है। वह अपने लक्ष्य को केवल बाह्य उपलब्धि के रूप में नहीं, बल्कि सर्वांगीण विकास के रूप में देखने लगता है। इस आंतरिक परिपक्वता से उसके कर्मों में दृढ़ता, निर्णयों में विवेक और प्रयत्नों में निरंतरता आती है। शनैः शनैः यही मानसिक व भावनात्मक संतुलन उसे सफलता के शिखर तक पहुँचाता है। जब व्यक्ति अपने भीतर इसे अनुभूत कर लेता है, तब उसकी उपलब्धि केवल व्यक्तिगत नहीं रहती, बल्कि समाज के लिए भी प्रेरणा बन जाती है।

जब प्रत्येक सदस्य अपने भीतर के नैतिक और बौद्धिक मूल्यों को पोषित करता है, तब सामाजिक संरचना में संतुलन, सशक्तिकरण और उन्नति की प्रवृति उत्पन्न होती है। अंकुरण यह स्मरण कराता है कि महतो महीयान् शिखर की यात्रा सूक्ष्म सोपान से प्रारंभ होती है व प्रत्येक छोटे प्रयास से व्यापक सामाजिक कायाकल्प संभव होता है। श्रीमद्भगवद्गीता में संपूर्ण गीतोपदेश श्रवण के बाद अर्जुन अंत में कहते हैं,"नष्टो मोहः स्मृतिर्लब्धा त्वत्प्रसादान्मयाच्युत",

अर्थात् "हे अच्युत! इस संपूर्ण ज्ञान को सुनने के बाद मेरा मोह नष्ट हो गया है एवं अब मैंने धर्माधर्म की स्मृति प्राप्त कर ली है।" अर्जुन के भीतर हुए नवसर्जन को ही स्मृति-बोध का नाम दिया गया है। समर मध्य में अंतर्द्वंद्व से बद्ध अर्जुन ने अपने आत्मबल से धर्मज्ञान का अंकुरण प्राप्त किया। यह केवल किसी एक तक सीमित नहीं रहा अपितु अन्यान्य कई जन सामान्य को पुनीत करनेवाला बना। इसी प्रकार किसी भी विभूति के जीवन वृक्ष में जब विचारों का स्फुरण होता है तब केवल स्वयं तक सीमित न रहकर उसकी छाया विशाल जनमानस को प्रतिकूल स्थिति में आच्छादित करने वाली होती है। ऐसा मनुष्य अपने विचारों से, मनसा वाचा कर्मणा अपने कृत्यों से एवं अपने आभामंडल से स्वकल्याण के साथ अपने परिवेश में सबके मार्जन व उत्थान का कारक बनता है। प्रत्येक आंतरिक जागरण का उद्देश्य केवल स्वयं का उद्धार नहीं, बल्कि समष्टि के आरोहण में सहभागिता है। इसी प्रकार पल्लवन केवल आत्मिक परिवर्तन नहीं, अपितु लोकमंगल की दिशा में प्रवाहित होने वाली ऊर्जा है। यह चेतना के विस्तार का वह चरण है, जब आत्मोत्थान स्वोन्नति तक सीमित न रहकर लोक कल्याण में परिणत हो जाता है एवं विश्व के उद्धार का कारक बनता है।

जब अस्तित्व के अंतरतम में यह मृदु स्पंदन जागृत होता है, तब मन में नूतन विचार, समाज में नये मार्ग और जीवन में नयी सरसता का आलोक स्वतः ही प्रवाहित हो जाता है। यह अनुभूति किसी एक क्षण अथवा व्यक्ति तक सीमित नहीं, अपितु वह सतत प्रवाह है जो अनुभव को प्रज्ञा में और प्रज्ञा को कल्याण में रूपांतरित करती है। इस प्रकार पल्लवन केवल सृजन का संकेत नहीं, बल्कि वह मौन अविरलता है जो हर युग, हर मन और हर दिशा को नवनिर्माण की अनुकम्पा से चैतन्य रखती है।

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