Yantrik Oyantrik

10th Edition (2025-2026)

যান্ত্রিক অযান্ত্রিক

দশম সংস্কৰণ (২০২৫-২০২৬)

Designed By: Dibakar Das (Mechanical Engineering) 6th Sem

বিভাগীয় সংগীত

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Message from the Principal

It is a matter of great satisfaction to learn that the Mechanical Engineering Department of Assam Engineering College is bringing out the tenth edition of its annual departmental newsletter, "Yantrik–Oyantrik." This publication serves as a valuable platform to showcase the academic, technical, and creative pursuits of the department.

I am confident that this edition of the magazine will effectively reflect the diverse activities, achievements, and intellectual spirit of the department, while also contributing to the overall progress and reputation of the college.

I convey my best wishes to the faculty members and students of the Mechanical Engineering Department for the successful publication of this edition and for their continued dedication toward excellence.

Dr. Bipul Talukdar
Principal
Assam Engineering College

Message from the Head of Department of Mechanical Engineering

As the Head of the Mechanical Engineering Department at Assam Engineering College, I am honored to share with you the department's progress, achievements, and milestones in our annual newsletter ***Yantrik-Oyantrik*** for the session 2025-2026. I took charge of HoD of this department on 1st May 2025 from Dr. Pradip Kumar Mahanta who superannuated after a long 40+ years of service in Technical Education of Assam. I deeply mourn the unfortunate death of Mahanta Sir who left us on the very first day of the new year 2026. The Mechanical Engineering Department at Assam Engineering College is one of the oldest and most respected departments in the institution. With a rich history of producing talented engineers, we continue to strive for excellence in teaching and research. Our department is committed to providing quality education, fostering research, and promoting industry-institute interaction.

In the last year many new young bloods joined this department in faculty positions making the work culture more vibrant and energetic. I welcome them to the department. Our department has achieved several milestones in the past year, including:

1. NBA Accreditation: Our UG program in Mechanical Engineering has been accredited by the National Board of Accreditation (NBA) for the next three years (up to 30/06/2028), a testament to our commitment to quality education.

2. Introduction of new Course Curriculum in the line of New Education Policy (NEP) 2020: The department has introduced more skill based, Industry Oriented and Inter-disciplinary curriculum in the line of NEP 2020.

3. Publications: Our faculty and students have published several research papers in reputed international journals and conferences, showcasing our department's research excellence.

4. Industry Exposure and Collaborations: We have strengthened our industry collaborations, with several leading companies partnering with us for internships, projects, and research collaborations. The department has currently collaboration with three reputed Industries: - Godrej Boyce, Volvo-Eicher and Emami. Efforts are 'on' to have collaboration with other Industrial Units for strengthening the Industry-Institute bond

5. Department Social Responsibility (DSR): The department in the last year entered into an understanding with *Jalukbari Girls High School* for mentoring their students in different subjects and Career Counselling.

Our students are the future of our department and our institution. We are committed to providing them with the best possible education, research opportunities, and industry exposure. Our alumni are an integral part of our department's history and success. We value their contributions and appreciate their continued support. I invite them to stay connected with us, to share their experiences, and to contribute to the growth and development of our department.

In conclusion, I am proud of the achievements of our department, and I am confident that we will continue to excel in our mission to provide quality education, research, and innovation. I thank all our stakeholders, including students, faculty, staff, alumni, and industry partners, for their continued support and collaboration.

Dr. Plabon Kakoti
Head, Mechanical Engineering Department

From the Editorial Desk

Dr. Sushmita Deka

Ms. Parishmita Bhuyan

Ms. Anindita Mahanta

It is with great pride and enthusiasm that we present the tenth edition of Yantrik–Oyantrik, the annual departmental magazine of the Mechanical Engineering Department, Assam Engineering College. This publication is a sincere attempt to capture the academic spirit, innovative mindset, and creative expression that define our department.

Over the years, Yantrik–Oyantrik has evolved into a vibrant platform that encourages students to explore ideas beyond the prescribed curriculum. It provides an opportunity for young engineers to articulate their technical knowledge, share research interests, express creativity through writing and artwork, and engage in thoughtful discussions on emerging trends in engineering and technology. This edition reflects a rich blend of technical articles, research insights, industry perspectives, and creative contributions, all of which showcase the diverse talents of our students.

The successful compilation of this magazine would not have been possible without the unwavering support and guidance of our respected faculty members, who continuously inspire students to pursue excellence in both academics and co-curricular activities. We are deeply grateful to them for their encouragement, valuable suggestions, and constructive feedback throughout the editorial process.

We would also like to extend our heartfelt thanks to the college administration and to all contributors for their dedication and effort, as well as to the editorial team members whose teamwork, perseverance, and commitment ensured the timely completion of this edition.

We hope that this issue of Yantrik–Oyantrik serves as a source of knowledge, inspiration, and motivation for readers, fostering curiosity, innovation, and a deeper appreciation for the field of mechanical engineering. We welcome feedback and suggestions that will help us improve future editions and strengthen this platform for creative and technical expression.

With best wishes and warm regards,
The Editorial Team
Yantrik–Oyantrik
Department of Mechanical Engineering

A tribute to Dr Pradeep Kumar Mahanta

It is with deep sorrow that we remember Dr. Pradeep Kumar Mahanta, a distinguished academic and former Head of the Department of Mechanical Engineering at Assam Engineering College, Guwahati. Dr. Mahanta was born in Kosorua, Kamrup, Assam, to his late father, Mahadeb Kumar Mahanta. His educational journey began at Cotton College, Guwahati, where he earned his B.Sc. (Honours) in 1976. He went on to complete his B.Tech in Mechanical Engineering from REC (now NIT) Rourkela in 1983, followed by an M.Tech from the Indian Institute of Science, Bangalore in 1989, and a Ph.D. from the same prestigious institution in 2002 (or associated with REC Rourkela in related records).

A dedicated educator who served at both Assam Engineering College and Jorhat Engineering College, Dr. Mahanta contributed immensely to mechanical engineering education in Assam over several decades. He was known for his expertise in fluid and thermal engineering, his role as an inspiring teacher, and his leadership as HoD at AEC, where he guided generations of students and colleagues with warmth, professionalism, and a always jolly demeanor.

Having retired from service on April 30, 2025, he left an indelible mark on the institutions he served and the many lives he touched. His sudden passing on January 1, 2026, reportedly due to cardiac arrest, came as a profound shock to the entire engineerin Dr. Mahanta will be fondly remembered as a mentor, colleague, and friend whose legacy of dedication and kindness endures. May his soul rest in eternal peace.

Om Shanti.

This is the annual newsletter of the Department of Mechanical Engineering, AEC Guwahati. Published every year on 25th January, the foundation day of the College. It highlights the activities, events and achievements of the department to the stake holders and to the public at large. This is the tenth edition of this newsletter.
2025-26
Tenth Edition

Editors:

Dr. Sushmita Deka
Ms. Parishmita Bhuyan
Ms. Anindita Mahanta

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Department Profile

The Department of Mechanical Engineering was established in the year 1957. It was the second department of Assam Engineering College Guwahati offering UG course in Mechanical Engineering (ME). The department's long history is resplendent with significant service to the nation and the world. The alumni of the department are well placed in the society throughout the globe bringing laurels to the department and the institute.

In the year 1998, the UG course in Industrial & Production Engineering (IPE) was introduced. Subsequently, from the year 2005 PG and PhD courses in Mechanical Engineering were offered. The current intake in UG (ME) and UG (IPE) is 66 and 22 respectively. While the intake in PG (ME) is 18.

Department's Vision:

To build professionally competent Mechanical Engineers capable of contributing towards development of the nation and betterment of the society.

Department's Missions:

M1. To generate academic atmosphere conducive for developing soft skills, teamwork, leadership & entrepreneurship upheld by professional ethics and committed to development of the nation.

M2. To provide high quality education for undergraduate programme in Mechanical Engineering and for higher study by adopting strategic approach in curriculum design and teaching methodology.

M3. To promote acquisition of new knowledge and skill by collaborating with institutes of excellence and industries.

M4. To generate new knowledge by creative thinking and innovative research targeted at the needs of the society and also North East India.

Program Educational Objectives (PEO)

1. Graduate engineers will develop effective technical expertise in Mechanical Engineering upholding ethical & moral values in practice and public life.

2. Graduate engineers will apply their innovative thinking and problem-solving capability in social and professional life, exhibiting leadership by communication and teamwork.

3. Graduate engineers will be proficient in continuing their higher studies, professional development courses and research.

4. Graduate engineers will be capable of mobilizing human and physical resources to their fullest extent in organizations for holistic development.

Program Specific Outcomes (PSO)

PSO1. Graduate Engineers will be able to exhibit excellence in the design of mechanical engineering systems using classical and state-of-the-art tools.

PSO2. Graduate Engineers will be able to exhibit employable skill in the areas of thermal power and modern manufacturing.

AEC's Vision:

To be an institution for promoting and supporting sustainable development.

AEC's Missions:

- To prepare technical manpower with knowledge, skills and values of sustainability.
- To take up relevant problems of society & industry as projects,

People in the Department

List of Faculty

Sl No	Name	Designation	Area of Specialization
1	Dr. Plabon Kakoti	Professor and HOD	Industrial Engineering & Management
2	Dr. Niharendu Saha	Professor	Machine Design, Tribology, Composite Material
3	Dr. Manjuri Hazarika	Professor	Cim, Green Manufacturing
4	Dr. BashabJyoti Phukan	Professor	Thermal Engineering
5	Dr. Pradip Baishya	Professor	Solid Waste Management
6	Dr. Manash Hazarika	Professor	Advanced Production Systems
7	Dr. Prasanta Kumar Choudhury	Professor	Thermal Engineering
8	Dr. JitulBaruah	Professor	Thermal Engineering
9	Mr. Baharul Islam Barbhuyan	Associate Professor	Thermal Engineering, Environment
10	Ms. Mousumi Gogoi	Assistant Professor	Manufacturing, Design
11	Mr. Madurjya Baruah	Assistant Professor	Machine Design, Vibration
12	Dr. Manash Bhuyan	Assistant Professor	Industrial & Production Engineering
13	Dr. Monoj Baruah	Assistant Professor	Industrial & Production Engineering
14	Dr. Dipanka Bhuyan	Assistant Professor	Thermal Engineering
15	Dr. Dimbalita Deka	Assistant Professor	Applied Mechanics
16	Mr. JibanJyoti Kalita	Assistant Professor	Thermal Engineering, Tribology
17	Mr. Apurba Roy	Assistant Professor	Microfluids
18	Mr. SanjibBiswas	Assistant Professor	Applied Mechanics
19	Mr. Debashish Ranjan Nath	Assistant Professor	Renewable Energy
20	Mr. Anirban Saha	Assistant Professor	Cam
21	Dr. Sushmita Deka	Assistant Professor	Design
22	Ms. Parishmita Bhuyan	Assistant Professor	Production & Industrial Engineering
23	Ms. Anindita Mahanta	Assistant Professor	Manufacturing
24	Dr. Papari Das	Assistant Professor	Materials and Manufacturing

List of Technical Staff

Sl No.	Name	Designation
1	Mr. Apurba Kr Das	Technical Operator
2	Mr. Manash Saikia	Supervising Instructor
3	Mr. Pranab Jyoti Sarmah	Junior Instructor
4	Mr. Jyotish Kathar	Junior Instructor
5	Mr. Nilamoni Sarma	Junior Instructor
6	Mr. Mahesh Barman	Boiler Attendant

List of Non-Technical Staff

Sl No.	Name	Designation
1	Mr. Sushil Rabha	Lab Bearer
2	Mr. Kangkan Baishya	Lab Bearer
3	Mr. Majibul Haque	Lab Bearer
4	Ms. Mausumi Dutta Bordoloi	MTS
5	Mr. Mainul Ali	Computer Lab Service (Contractual)

Assam Polytechnic School

Dr. D K Mahanta
Retired Professor
Mechanical Engineering Department, AEC

One major impact of British rule in Assam was the formation and growth of a new Assamese middle class during the last three decades of the nineteenth century. Another key development, occurring a few decades after the annexation, was a new awakening among the region's people. This awakening was a natural result of the influence of enlightened Assamese youth, who emerged as leaders of the modern middle class. Young Assamese men such as Ananda Ram Barua, Anandaram Dhekial Phukan, Hem Chandra Barua, Gunabhiram Barua, and Jaduram Deka Barua pursued higher education outside the state through the British education system. Witnessing the positive developments in Bengal, these young men returned home enthusiastically with ideas for improved living, better education, and enhanced performance in business and industries.

Consequently, the process of downward filtration, as envisaged by Lord Macaulay, gradually began. A change in the people's attitude became visible, manifesting as a new awakening in the Brahmaputra valley during the later part of the nineteenth century.

This awakening led to the formation of many educational institutions, among which were several schools and the prominent Cotton College. This period also saw the establishment of a few technical institutions. Notably, two of these were the Government Weaving Institute (now known as the Assam Textile Institute), located in Guwahati, and POWIET in Jorhat.

Another technical school, a model vocational school, was established by the sole effort of an extraordinarily courageous, hardworking man with a clear vision for the benefit of the people around him. Bhuban Chandra Gogoi, a committed nationalist, designed the school in line with the Tuskegee Institute in Alabama, USA. Established by Booker T Washington in 1881, this school for African Americans in Alabama emphasized practical education, alongside formal teaching, to empower the students. Washington's school began with no buildings; students and Washington constructed their own. Later, the school evolved into a major university. Gogoi's dream school, Assam Polytechnic School, also started classes in December 1918 with 5 students, when the building, a thatched house, was being constructed by the villagers of Bokota Patsaku in Shiwasagar district, who wholeheartedly supported his efforts.

Gogoi had his early education in Shiwasagar in upper Assam. Then he went to college in Guwahati and Kolkata. His academic performance was not so brilliant. He earned his fellow students' respect for his powerful oratory and leadership, their love for his athletic excellence, and their admiration for his mental and physical strength. During his time at Saint Paul's Cathedral College in Kolkata, he played for the Mohan Bagan Football Club. In 1914, while a fourth-year BA student, the British Principal spoke to him about the importance of residential training schools, stating that every Indian had a duty to serve and sacrifice for the nation. Deeply inspired, he returned home with a vision: to create a residential school that would foster his people's economic independence, as well as their physical, moral, and spiritual growth.

He designed the unique model of curriculum for his school such that students, apart from attending regular classes that also included weaving, tailoring, carpentry, blacksmithing and agriculture as vocational training, had to perform prayers two times, i.e., in the morning and evening, play, exercise regularly, read newspapers, and carry out some social activities. His school started performing extremely well.

Students and teachers made desks, benches and tables for the classrooms, produced food grains and vegetables to feed themselves as well as to sell, and also sold woven clothes. His motto, 'Earning while learning,' succeeded. Their efforts fetched a good earning. Students enjoyed their stay as well as the work. They used to feel as if they were at home. The

school gained popularity in that area and the number of students started swelling. The school had 150 students in 1920. However, a true patriot, Gogoi actively took part in the non-cooperation movement and was sentenced to imprisonment for one year. He returned from the jail to find his school in a dilapidated condition. He decided to shift the school to Chunpura village in June 1923. However, the school at Bokota Patsaku was continued as a branch of the main school now at Chunpura. Gogoi appointed Indreswar Chutia, a quiet and dedicated social worker, as the principal of the school. The school got a new lease of life after the Gogoi-Chutia duo started working hand in hand. Two more teachers, Moulana Jalal Ahmed and Narendra Kumar Bhattacharjee (from Shrihatta), joined as teachers very soon and the school started functioning smoothly. As the school earned wide recognition, a group of people from Shiwasagar town requested Gogoi to shift the school to the town. He agreed and shifted the school to Shiwasagar town in the month of December 1924, and the new session was started at the new site from January 1925.

As a considerable number of students in the new school were residents nearby, they preferred their own houses to hostels at night, and Gogoi had to modify his residential school concept. He introduced a new system called Day Student's Home, i.e., the students would come to the school early in the morning and stay in the school till evening; they would perform all day-to-day activities, including taking a bath at the school. It was expected that students would acquire good qualities like discipline, punctuality, morality, and respect for the dignity of labour.

He obtained affiliation for his school from Benaras Hindu University, not from Calcutta University, to which most institutes of Assam were affiliated at that time. The curriculum of BHU for the Metriculation Examination at that time contained a compulsory vocational subject like carpentry, blacksmithy, etc. Students had to travel to Benaras and stay there to appear in the final examination. Gogoi, the man of far-sight, aimed on one hand to make the students learn some practical work useful for life after school, and on the other hand, to inspire the new generation to move out of the state in search of ventures.

Most of the students, after completion of the course, received good government jobs. Some of them did not want job and opted to return to their respective villages. They lived a better life compared to their fellow villagers due to their trained educational background.

The school earned great laurels also outside the state. As such, it started drawing visitors from all corners, including foreign visitors. J R Cunningham, the DPI of Assam, visited the school in May 1924 and was impressed by the ideals and activities of the school. He assured to provide recognition to the school, which is essential for getting government aid. Noted social worker of that time, Amritlal Vithaldas Thakkar alias Thakkar Bappa visited his school in August 1933 and was greatly impressed by the achievements attained by the institute. 'A very practical institution, in a not very advanced province, conducted in a very silent way, by a nationally-minded gentleman, the unique of its kind in the whole province, in a very modest way. …… We want hundreds of such manual training schools. … Dignity of labour, handiwork, andproduction by one's hands, are wanting in our country. This school supplies the want in a very unassumingly simple, but very effective way'. Gordon T Bowles, an Anthropologist from Harvard University, visited the school in June 1936 and he commented: 'We have been very favourably impressed by the polytechnic school under Mr Gogoi's able guidance. The school has rescued from oblivion many of Assam's ancient arts and has brought these into useful course and into everyday life'.

Gogoi passed away in 1940. His school is still alive. It is now known as Shiwasagar Polytechnic, an institute offering courses up to the tenth standard. Gogoi's dream school could not reach the height of Tuskegee Institute for obvious reasons. Tuskegee succeeded due to a combination of government support, dedicated workers and people's cooperation. Gogoi's institution lacked all these essential elements and could not rise to the same level. However, his ideals and dedication will always be remembered.

[*Information about B C Gogoi and his school was collected from the Memoire 'Karmoyogi Bhuban Gogoi Jeewanee Sankalan' published on 25th October 1989 at Shiwasagar on the occasion of his birth centenary.]*

Demanding Skills of Mechanical Engineers under Changing Environment

Dr. Sudip Kumar Deb
Retired Professor
Mechanical Engineering Department, AEC

After independence the prime objectives of higher education set in India was to impart knowledge, skill, values and ethics to the student community for the development of nation. Today at the end of seventy-five years of independence the Indian Higher education could not able to achieve the desired goal. They have been able to impart only knowledge under the conventional educational system. The other two vital components i.e. skill and values/ethics were not at all implemented in the course curriculum of higher education. As a result, the true benefits of higher education in the development of society and nation were not achieved till today. In order to compensate the slow growth of higher education to bring real visible changes and benefits, the Government of India has recently adopted NEP-2020. The prime objective of such restructuring in higher education has been done to impart skill and values/ethics under Indian knowledge system to get real benefits in the development of society under make in India philosophy.

Mechanical engineering being one of the major components in higher technical education has served for the development of nation with its conventional knowledge system but with the rapid change of environment under multifaceted advanced technologies, it has been highly essential to redesign the course curriculum in order to impart necessary skills and values to get real benefits in the development of nation.

Framework of Mechanical Engineering

Mechanical engineers design power-producing machines, such as electric generators, internal combustion engines, and steam and gas turbines, as well as power-using machines, such as refrigeration and air-conditioning systems. In the dynamic field of mechanical engineering, a multifaceted Skill for Mechanical Engineers skill set is essential to excel and innovate. A strong foundation in core engineering principles is the foundation of a Mechanical Engineer's skill set and this includes a deep understanding of mechanics, thermodynamics, materials science, and fluid dynamics. Proficiency in computer-aided design (CAD) software, computer-aided manufacturing (CAM), and other engineering tools is also essential.

In a world rapidly changing with advance technologies under the influence of automation, artificial intelligence, and climate consciousness, the role of mechanical engineers is more important than ever. As India aims to become a global engineering powerhouse n near future, the demand for skilled mechanical engineers is expected to rise intensely. From robotics to green energy systems, tomorrow's engineers will need more than just textbook knowledge. They will need the future-ready skills in order to market them easily in industries or start new entrepreneurship venture or start up. So, it has been very essential to develop new engineering colleges or reform existing engineering colleges to impart necessary skills and hands on training with innovative course curriculum. Every institution will have to be ready with capable faculties and facilities to impart demanding skills under changing environment.

Demanding Skills in Mechanical Engineering

To reform the existing education system, the Government of India has already introduced NEP-2020 to restructure and redesign the course curriculum which can give demanding skills to the students for sustainable development under changing scenario. In near future the mechanical engineering will be defined by a fusion of digital and physical worlds, with high demand for skills in **AI, robotics,** sustainable energy**, and** advanced manufacturing, requiring engineers to be

lifelong learners in multidisciplinary fields like mechatronics and green tech, while traditional problem-solving skills remain crucial but enhanced by new tech for smarter, greener solutions.

Green Technologies and Sustainable Designs: Mechanical engineers play a vital role in providing innovative solutions that facilitate sustainable development. Thus, to become an engineer, you need to hone manufacturing processes and design-related expertise. Your skills will help you develop better technologies that address climatic challenges. Most companies look for mechanical engineers who can create future-proof designs using green technologies. These experts integrate low-carbon technologies and lower greenhouse gas emissions.

Programming Skills: Mechanical engineers often work with design iterations and repetitive calculations. So, they should gain Python programming skills to automate thermodynamic property calculations and design optimization.

The best engineering programs include curricula to improve your Python knowledge. Python provides powerful libraries (such as Pandas) for data manipulation. Python tools have made it easy to detect anomalies and assess trends. Your Python knowledge and skills will help you minimize human errors and save time.

Robotics and Automation: Robotics and automation are not mere trends in the mechanical engineering field. Most manufacturing companies use automatic conveyors and robotic arms to increase productivity. Thus, solid knowledge about these concepts will ensure your future career success.

As an efficient mechanical engineer, you need to design machines that integrate actuators and sensors. It is essential to have a clear understanding of robotic systems' dynamics. In order to ensure higher production efficiency, the Mechanical engineers and automation specialists also work together.

Additive Manufacturing and 3d Printing

Additive manufacturing and 3D printing technologies have transformed the way we design products. So, mechanical engineers should know about additive manufacturing to deal with rapid prototyping projects. Unlike traditional methods, AM technologies help with the creation of complex geometries. That is why manufacturers look for additive manufacturing experts to design optimized yet lightweight parts. Moreover, professional engineers should have 3D printing skills to accelerate the product development lifecycle.

Internet of Things

Mechanical engineers often need to design smart devices like HVAC systems and connected vehicles. They should have IoT knowledge and skills for designing products that integrate smart systems.

Moreover, machines in modern factories are networked to optimize workflows and predict failures. So, engineers must have Internet of Things knowledge to contribute to real-time system optimization.

Project Management and Collaboration

The ability to plan, execute, and deliver projects on time and within budget remains crucial. The Engineers must also collaborate effectively with professionals from various fields, both in-person and in increasingly common remote settings and those who can manage projects and teams efficiently will ensure the smooth progression of engineering initiatives from conception to completion.

Conclusion

The future of Mechanical Engineering in India is bright, driven by automation, Industry 4.0, and a focus on sustainability, with high demand in Electric Vehicles, aerospace engineering, renewable energies, and smart manufacturing, requiring skills in Artificial Intelligence, robotics, CAD/CAE, and green tech, creating new roles in R&D, design, and advanced manufacturing as India becomes an engineering hub. Thus, the trends and opportunities with demanding skills in mechanical engineering in near future are listed below.

(i) AI & Digital Integration: AI will revolutionize design, analysis, and automation, requiring mechanical engineers to understand programming and data.

(ii) Robotics & Automation: Expertise in robotics and mechatronics will be essential as industries embrace smart manufacturing.

(iii) Sustainability & Green Tech: Developing sustainable systems, from green energy to eco-friendly products, will be a core focus.

(iv) Advanced Manufacturing: Additive manufacturing (3D printing) and digital design tools will transform production, demanding new skills.

(v) Multidisciplinary Collaboration: Engineers will increasingly work with software and electrical experts, bridging mechanical and digital domains.

(vi) Digital Proficiency: Programming (Python, etc.), data analytics, and AI tools.

(vii) Systems Thinking: A holistic approach to problem-solving, integrating complex systems.

(viii) Sustainable Design: Creating energy-efficient and environmentally friendly solutions.

From Textbooks to the Shop Floor: The Reality of Mechanical Engineering

Mr. Swarup Jyoti Das
Senior Officer, OIL
(ME 2025 Batch AEC)

During academic life, mechanical engineering feels very systematic and well-defined. Every problem has given data, clear and well-defined assumptions, and a single correct answer. Subjects like thermodynamics, strength of materials, and fluid mechanics explain how machines and systems should behave under certain conditions. At that stage, theory appears complete and convincing. However, once a mechanical engineer enters real industrial work, it becomes clear that practical engineering is far more complex and sometimes easier than what is taught in classrooms. What we have learned may not be used directly but necessary to understand the Equipments, machineries, different problems and their troubleshooting.

One of the first differences noticed is the role of assumptions. In theory, calculations are done by assuming ideal conditions such as steady flow, uniform material properties, perfect alignment, Constant ambient temperature and pressure and negligible losses which are always there in real life. These assumptions make problems easier to solve and help in understanding basic concepts. In actual practice, machines rarely operate under such ideal conditions. Loads are not uniform, vibrations are present, frictional losses are significant, machines work for ages which are never under ideal conditions and environmental conditions constantly change. Engineers often realize that theory gives direction, but it does not always give the final answer.

Material behavior is another area where theory and practice differ noticeably. In textbooks, materials have fixed properties like yield strength and modulus of elasticity. In real applications, materials behave differently due to manufacturing defects, welding, heat treatment, corrosion, and aging. Two components made from the same material may perform differently in the field. This variation forces engineers to rely not only on calculations but also on experience and inspection.

Manufacturing issues become very clear once a design moves from paper to the shop floor. Many designs look perfect in drawings or software, but turning them into an actual component is often not that simple. Engineers are bounded by Limitations of machines, difficulty in maintaining tight tolerances, non-availability of tools, and budget restrictions which force engineers to rethink the design. In many cases, theoretical designs do not consider practical aspects such as ease of fabrication, assembly clearances, cost of raw materials, tools and other supporting items, or access for future maintenance. Because of this, engineers often simplify designs to make them stronger, easier to manufacture, and more economical, even if it means a slight reduction in theoretical efficiency.

Safety is another area where theory and practice differ a lot. In textbooks, components are designed for calculated loads under controlled conditions. In real operation, loads are rarely constant. Equipment faces sudden shocks, operator errors, changing environmental conditions, and unexpected situations. In industries we can see much equipment and many plants running beyond rated capacity to fulfil the increasing demand. To deal with these uncertainties, safety factors are introduced. Selecting the right safety margin is not only about calculations; it depends heavily on experience, past failures, and understanding how equipment behaves over time. For example, firefighting pumps or drenching pumps were installed and are capable of discharging 150 % of rated capacity at a certain head.

In textbook we come to know about different types of maintenance and their pros and cons. Real life Maintenance-related problems are hardly discussed in theoretical studies, but in actual industry, they become a major concern. Machines do

not remain in new condition forever. Wear, fatigue, and corrosion slowly affect performance. For examples with time pump losses its discharge capacity and maximum pressure at which they are supposed to pump the fluids. With time, recurring noise starts coming from rotating, reciprocating, and other moving parts. Seals slowly begin to leak, and alignment changes happen gradually without being noticed. If these small issues are ignored, they can later turn into major breakdowns or even serious accidents. In many cases, failures do not happen because of a poor design, but because the machine ends up working in conditions much harsher than what it was originally designed for. Practical engineers therefore focus more on reliability and service life rather than just initial performance which never remains the same.

Human involvement further increases the gap between theory and practice. Theoretical problems assume that machines are installed and operated correctly. In real life, mistakes are common. Improper installation, wrong operating methods, skipped maintenance schedules, change of operators and lack of training can cause failures even in well-designed systems. Understanding this aspect of engineering comes mainly from field exposure, not from textbooks.

As we can learn specific theory in a short time, such as studying an subject before an exam. If I need to learn about IC engines, I can find thousands of materials from different sources. However, if I am assigned to overhaul an engine and identify the problem, I would likely fail at the first instance. Practical problems do not have solutions available in a single place or from a single person. Learning practical aspects takes time and requires careful observation and continuous practice. That is why most industries prefer experienced candidates over freshers, even if freshers have wider theoretical knowledge

Theory gives the foundation of mechanical engineering, but practical experience gives real understanding. Theory tells us how systems should behave, while practice shows how they actually behave in real conditions. A good mechanical engineer is someone who does not blindly follow formulas, but applies theoretical knowledge intelligently, learning continuously from real-world challenges and experience.

From Gears to Growth: Navigating the Alchemy of Engineering

Mr. Anubhav Goswami
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Industrial Substance Project Leader at Airbus
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It feels like only yesterday that I stepped through the gates of AEC in 2015—a wide eyed dreamer with a mind as raw as unrefined ore. Looking back now as a 2019 Mechanical Engineering graduate, I realize that college wasn't just about earning a degree; it was the forge where my character was tempered.

The Symphony and the Stress

My journey wasn't a linear ascent. In my early years, my heart beat to a different rhythm—literally. I was deeply immersed in national-level music competitions, chasing melodies while my textbooks gathered dust. While my soul was flourishing on stage, my grades were singing a somber tune.

However, the beauty of our department lies in its discipline. I had the "privilege" of being a student under professors who knew my mother well, as they shared the same workspace—yes, I was ''that kid'' of the professor who teaches Mechanics of Materials (MOM). While my peers in other departments enjoyed the freedom of skipping classes, I was pinned to my desk by the invisible thread of maternal accountability. To my professors: thank you for the "persuasion." It worked. I managed to find my tempo, blooming into a decent academic record that eventually opened the doors to Tata Aerospace and Defence (formerly Tata Advanced Systems) in 2019.

From Defense Giants to Commercial Skies

At Tata, I joined as a Graduate Engineering Trainee (GET). After stints in Manufacturing Engineering and Quality, I eventually led the Vendor Management division. This foundation allowed me to work on prestigious defense projects for Lockheed Martin US, contributing to the C-130J Super Hercules and the intricate manufacturing of F-16 wings. Spending four years at Tata taught me the true inner workings of the corporate world.

Today, I have transitioned to Airbus as an Industrial Substance Project Leader. In this role, I have a direct impact on the entire fleet of Airbus commercial aircraft— from the nimble A220 and A320 families to the massive A330 and A350. There is an immense sense of pride in seeing these aircraft take to the skies, knowing my work ensures the safety and excellence of the planes we fly in.

Why the Basics Still Matter

In core industries, your fundamentals are your compass. You might wonder if you'll ever use the nuances of Metrology or Industrial Production in a high-tech environment. The truth is, these subjects help you relate to the physical reality of engineering.

While not every theorem is used daily, having a broad knowledge of mechanical subjects is an "add-on" that never has a downside. Whether in defense or commercial aviation, understanding the "how" and "why" behind production allows you to speak the language of the shop floor and the boardroom alike. Stay open to learning; in engineering, being a generalist with a technical heart is a massive advantage.

Building Your "Selling Point"

Technical knowledge is the engine, but communication skills are the fuel. You can be a brilliant engineer, but if you cannot articulate your ideas, your impact will be limited. I cannot stress enough how vital Group Discussions (GDs) and presentations are—they are rehearsals for the boardroom.

To the juniors, I highly recommend:

Get involved: Join CSR activities and event-organizing committees. These roles boost your resume and build the "soft power" that gives you an edge during interviews.

Network: Stepping out of your comfort zone now makes you a better collaborator later. The Winner's Mindset: The industry prizes Program Managers who can bridge the gap between technical grit, Project Management, and Stakeholder Management.

Finding Your North Star

Stepping into corporate life can be daunting. There will be moments when the pressure makes you want to retreat. In those times, it is crucial to know what you want. Take time to figure out what you truly enjoy. I have friends who realized their passions lay outside of core engineering and are now flourishing in different fields. It is perfectly okay to pivot if that leads to your happiness. The key to a clear headspace is alignment—knowing what you are good at and staying committed to that path. I found my place in Aerospace, and that clarity is what keeps me focused. Keep learning, keep communicating, and most importantly, enjoy the best four years of your college life. In the end, we always figure things out—and if you are reading this, I know you will too!

NEP 2020 and Support for Persons with Disabilities in Higher Education

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Introduction

The National Education Policy (NEP) 2020, introduced by the Government of India after a gap of 34 years, is a transformative initiative aimed at overhauling the Indian education system. It lays a strong emphasis on equity, inclusion, flexibility, and holistic learning. Among its key objectives is to ensure that education becomes accessible to all, regardless of socio-economic, linguistic, or physical backgrounds.

A particularly commendable focus of NEP 2020 is its commitment to persons with disabilities (PwDs). In India, PwDs often face multiple barriers in accessing quality education, especially at the higher education level. These barriers include physical inaccessibility, lack of inclusive curriculum and pedagogical methods, inadequate support systems, and social stigma.

The NEP 2020 seeks to address these issues holistically by promoting inclusive education, improving infrastructure, encouraging use of assistive technologies, training educators, and ensuring policy alignment with national disability laws. While the policy sets a progressive vision, its effective implementation remains a complex challenge.

This report explores in detail the support mechanisms for persons with disabilities under NEP 2020, with a specific focus on higher education. It evaluates the policy framework, implementation status, institutional mechanisms, technological innovations, challenges, and offers practical recommendations for creating a truly inclusive higher education environment in India.

Policy Framework: Legal Foundations and Principles

The NEP 2020 does not operate in isolation but builds on existing legal frameworks. One of the most significant laws in this context is the Rights of Persons with Disabilities (RPwD) Act, 2016, which mandates non-discrimination, accessibility, and equitable education for persons with disabilities. The Act identifies 21 categories of disabilities and provides for 5% reservation in higher education institutions (HEIs) for PwDs.

The NEP 2020 aligns itself with these principles by:

- Emphasizing equitable access to education for all, including marginalized groups such as PwDs.
- Stating that education must be barrier-free and sensitive to the needs of students with physical and cognitive challenges.
- -Mandating the creation of inclusive learning environments, curriculum adaptations, and infrastructural adjustments.

In addition, the NEP's broader goals of flexibility, student-centric learning, and equity resonate with the rights-based approach to disability. For example, the policy's stress on multiple entry-exit options, credit transfer systems, and open learning options can benefit students with disabilities who may need breaks or alternative learning pathways.

However, while NEP 2020 echoes the spirit of inclusion, it often lacks detailed operational guidance on how these rights and frameworks are to be implemented within HEIs.

NEP 2020 Provisions for Inclusive Higher Education

a. Recognizing PwDs as a Disadvantaged Group

NEP 2020 explicitly includes persons with disabilities under the umbrella of Socially and Economically Disadvantaged Groups (SEDGs). This categorization ensures that PwDs are considered in all inclusion-related policies, funding allocations, and capacity-building programs.

b. Barrier-Free Infrastructure

The policy mandates the development of inclusive physical infrastructure in all HEIs. This includes:

- Ramps, elevators, tactile paths, and accessible restrooms.
- Accessible classrooms, libraries, laboratories, and hostels.
- Universal design principles in campus planning.

In addition, NEP encourages the retrofitting of existing infrastructure to comply with accessibility standards.

c. Curriculum and Pedagogy

NEP emphasizes inclusive curriculum development that takes into account the learning needs of PwDs. This involves:

- Curriculum adaptations for cognitive and learning disabilities.
- Braille books and tactile materials.
- Sign language instruction materials and modules.
- Simplified content and alternative assessments.

The policy also supports flexible learning models, which are crucial for students with mobility or sensory challenges.

d. Indian Sign Language and Alternative Communication

A landmark decision under NEP 2020 is the formal recognition of Indian Sign Language (ISL). The National Institute of Open Schooling (NIOS) has been tasked with developing ISL content, training materials, and assessment modules. By incorporating ISL into mainstream higher education, NEP paves the way for deaf and hard-of-hearing students to engage more fully with academic content and peer networks.

e. Assistive Technologies and Digital Inclusion

NEP calls for the integration of assistive technologies in both offline and online education. This includes:

- Screen readers and speech-to-text tools for visually impaired students.
- Hearing aids and captioned videos for hearing-impaired students.
- Adaptive keyboards and mouse devices for students with physical disabilities.
- Accessible learning management systems (LMS).

f. Financial Support and Scholarships

NEP emphasizes the need to provide adequate scholarships, fee waivers, and financial aid for PwDs. It encourages the expansion of existing schemes and recommends the creation of targeted financial support systems.

g. Inclusive Admissions and Support Services

To ensure fair representation of PwDs, NEP promotes:

- Simplified and inclusive entrance exams.
- Inclusive counseling and admission procedures.
- The establishment of Disability Support Centres or Enabling Units within HEIs.

Institutional Mechanisms and Governance

a. Rehabilitation Council of India (RCI)

The Rehabilitation Council of India (RCI) plays a pivotal role in preparing the human resource base for inclusive education. It is responsible for:

- Training special educators across disability categories.
- Certifying professionals who provide academic and therapeutic support to students with disabilities.
- Conducting ongoing research and curriculum development.

NEP 2020 supports the RCI's mandate and recommends cross-disability training for all educators, not just special educators.

b. Enabling Units and Equal Opportunity Cells

NEP encourages HEIs to establish Enabling Units or Equal Opportunity Cells (EOCs) as part of internal governance. These units are responsible for:

- Ensuring physical and academic accessibility.
- Providing individualized academic accommodations.
- Coordinating with exam boards for alternative assessments.

- Promoting sensitivity and awareness among faculty and staff.

c. Integration into New Governance Structures

Under NEP, the formation of new regulatory bodies like the Higher Education Commission of India (HECI) and the National Higher Education Qualifications Framework (NHEQF) includes mandates for inclusion. The Academic Bank of Credits (ABC) and Multidisciplinary Education and Research Universities (MERUs) will also be expected to adhere to inclusive policies.

Implementation Status and Ground Realities

While NEP 2020 is visionary in its approach, its on-ground implementation remains limited. As per recent UGC and AISHE reports:

- Only 0.23% of the total student enrollment in higher education comprises students with disabilities.
- Very few HEIs have made substantial infrastructural or academic adaptations.
- Most faculty members lack training in inclusive pedagogy.
- Only a handful of institutions have functional Enabling Units.

Furthermore, despite policy mandates, implementation timelines are vague. There is no clear accountability mechanism to monitor disability inclusion across institutions.

One major concern is that students with disabilities are often excluded from mainstream conversations about higher education reform. Many institutions interpret NEP guidelines as suggestions rather than mandates, thereby delaying systemic change.

Technology and Innovation in Inclusive Pedagogy

The National Education Policy (NEP) 2020 recognizes technology as a key driver of inclusive education, especially for Persons with Disabilities (PwDs) in higher education. In the post-COVID era, when online, hybrid, and blended learning have become integral parts of the academic process, technology offers a powerful means to ensure that no learner is left behind. Inclusive pedagogy aims to design learning experiences that cater to all students, regardless of their physical, sensory, or cognitive differences. Here, technology becomes both a bridge to access and a tool for empowerment.

Several innovations are underway:

- Digital Braille books, tactile graphics, and talking dictionaries.
- AI-based assistive tools such as voice recognition for writing tasks.
- Smart glasses and mobility support tools for visually impaired students.
- Accessible Learning Platforms that comply with WCAG (Web Content Accessibility Guidelines).

However, most HEIs lack the infrastructure and funding to implement these technologies at scale. There's also a digital divide, where students from rural or low-income backgrounds may lack access to devices and internet connectivity.

To bridge this gap, NEP encourages public-private partnerships and open-source tool development. But much of this is still in the planning phase. The following are some key points where technology and innovation must be taken care off:

1. Role of Technology in Inclusion

Technology removes traditional barriers to education by providing alternative ways of accessing, engaging with, and demonstrating understanding of academic content. For PwDs, it can transform the learning experience from one of dependence to one of independence, by making materials accessible in real-time and enabling personalized learning paths.

2. Current Innovations in Practice

Digital Braille books, tactile graphics, and talking dictionaries make printed content usable for visually impaired learners. AI-based assistive tools, such as speech-to-text for writing tasks or text-to-speech for reading, allow students to interact with course materials in formats suited to their needs. Smart glasses and mobility aids assist visually impaired students in navigating both campus environments and digital resources. Accessible Learning Platforms that follow WCAG (Web Content Accessibility Guidelines) ensure that online courses, portals, and digital libraries are usable for all students, including those with motor or sensory impairments.

3. Addressing Gaps and Challenges

While these innovations are promising, many Higher Education Institutions (HEIs) struggle with inadequate infrastructure, lack of trained personnel, and insufficient funding to scale these solutions. The digital divide remains a

major obstacle — students from rural or low-income backgrounds may lack devices, stable internet connectivity, or even awareness of assistive tools available to them.

4. NEP 2020's Strategic Approach

To bridge these gaps, NEP 2020 encourages:

Public-private partnerships to fund and expand assistive technology initiatives. Open-source development of accessible tools to make them affordable and customizable. Teacher training in inclusive pedagogical strategies, ensuring technology is effectively integrated into the curriculum. These measures aim to move beyond the pilot stage and embed accessibility into the mainstream education system.

5. Future Outlook

If implemented at scale, technology and innovation in inclusive pedagogy can lead to:

Greater autonomy and confidence for PwD learners.

A universal learning environment where accessibility features benefit all students, not just those with disabilities. Equitable academic outcomes, reducing dropout rates among PwDs in higher education. In essence, technology under NEP 2020 is not merely an aid for PwDs—it is a foundation for creating an educational ecosystem where diversity is embraced, participation is equal, and learning is barrier-free.

Gaps, Challenges, and Critical Perspectives

Despite its progressive intent, NEP 2020 faces several critical challenges when it comes to actualizing inclusive higher education:

a. Lack of Detailed Guidelines

The policy outlines what needs to be done but not how. There are no specific roadmaps, budgets, or metrics for inclusion. This leaves institutions uncertain and unaccountable.

b. Faculty Preparedness

Most faculty members are unfamiliar with the needs of PwDs. Without adequate teacher training, inclusive pedagogy cannot be mainstreamed. Even the teacher education curriculum under NEP is still evolving to address this gap.

c. Over-Reliance on Technology

While technology is useful, it cannot replace human support systems such as sign language interpreters, counselors, or peer mentors. NEP's emphasis on tech-based solutions may overlook this nuance.

d. Mental Health and Intersectionality

NEP is largely silent on the mental health needs of students with disabilities. Moreover, it does not adequately address intersectional issues such as caste, gender, and economic background among PwDs.

e. Privatization and Commercialization

NEP promotes the entry of private players in higher education. Without strong regulation, this could lead to exclusive practices, where private institutions avoid admitting students with disabilities due to infrastructure or support costs.

Recommendations

To ensure the effective inclusion of PwDs in higher education under NEP 2020, the following steps are recommended:

1.Clear Implementation Roadmaps

Develop actionable plans with specific timelines, responsibilities, and outcome indicators for inclusion.

2. Mandatory Enabling Units

Require all HEIs to set up Enabling Units and allocate dedicated budgets.

3. Inclusive Curriculum Reform

Integrate disability studies and inclusive pedagogy into teacher education and university syllabi.

4. Faculty Training

Conduct regular workshops and certification programs for educators on inclusive practices.

5. Assistive Technology Fund

Establish a national fund for the procurement and maintenance of assistive devices.

6. Student Support Services

Provide counseling, mentorship, and peer support for students with disabilities.

7. Monitoring and Accountability

UGC or HECI should publish annual reports tracking disability inclusion in higher education.

8. Partnerships and Innovation

Encourage NGOs, EdTech companies, and disabled persons' organizations to co-create solutions.

Conclusion

NEP 2020 marks a significant milestone in India's journey toward inclusive and equitable education. Its vision to bring persons with disabilities into the mainstream of higher education is bold and timely. However, transforming this vision into reality requires dedicated effort, inclusive governance, adequate funding, and social will.

While the policy sets the right tone, it must be backed by institutional reforms, monitoring mechanisms, and active engagement with disability rights organizations. Only then can Indian higher education become a space where every student, regardless of ability, has the opportunity to learn, grow, and succeed.

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Engineers Powering Assam's Growth

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Assam is undergoing a quiet but undeniable transformation — and engineers are at its heart. As reported in the news citing recent Reserve Bank of India data, the state's economy expanded from ₹2.4 lakh crore in 2019–20 to ₹3.5 lakh crore in 2024–25 — a growth of nearly 45 percent, the highest in India. But numbers alone cannot tell the whole story; the real change is unfolding in the everyday lives of people across our state.

The Visible Change

Not long ago, many roads in Assam turned to mud with the first spell of rain, cutting off towns and villages from each other. Today, those rough tracks have become smooth highways linking farms to markets and markets to cities. Ambulances now reach hospitals on time, and school buses no longer get stuck in puddles.

In the evenings, houses that once relied on dim kerosene lamps now glow with steady electric light. The soft hum of machines and computers has become a familiar sound even in small towns. Across the state, airports, bridges, and

industries stand as quiet reminders of how much effort, planning, and perseverance have gone into this change. Behind all these visible signs of progress is the steady work of engineers — the unsung builders of a modern Assam.

The Engineer's Footprint

Assam's growth as one of India's fastest-rising states has a strong connection with the work of its engineers. They have been part of every area of development — from transport and power to oil, gas, and digital services. The bridges over the Brahmaputra, the roads that link our towns, the power grids that light our homes, and the refineries that run our industries — all began as ideas on an engineer's drawing sheet.

Policies and funds may show the way, but it is engineers who turn those plans into real structures and systems. Their designs, calculations, and on-ground work give shape and strength to every project. Assam's story of progress, therefore, is equally the story of its engineering institutions, especially Assam Engineering College.

Founded in 1955, AEC has been part of this journey from the beginning. Its graduates have worked in refineries, factories, laboratories, startups, and government projects — often quietly, without public attention. Yet their work is visible everywhere in the state's roads, industries, and modern infrastructure. The lessons learned in AEC classrooms have, quite literally, built much of the Assam we see today.

Engineering in a Changing World

The way we learn and work is changing rapidly. Today, Artificial Intelligence can teach lessons, run experiments, and even design machines. Technology has made it possible for people with basic skills to handle complex tasks. In such a fast-changing world, we must ask — what does it really mean to be an engineer?

Being an engineer today is about more than just technical knowledge. It is about understanding people, society, and the world around us. Machines can be built with skill, but making them useful for society requires thought and sensitivity. Technical skills can help start a factory, but understanding economics helps that factory grow and sustain many lives. When engineering knowledge is guided by ethics and economic understanding, it can transform not only industries but also entire communities.

The Road Ahead

As India looks toward 2047, a hundred years after independence, the goal of becoming self-reliant is more than a national plan — it is a shared journey. True self-reliance comes when people use their knowledge, creativity, and hard work to create solutions for their own communities. It means turning learning into enterprise, and technology into something that serves people and protects the environment. Progress has meaning only when it is responsible and inclusive.

For Assam, this idea is deeply relevant. The students studying today at AEC and other institutions will soon take charge of this journey. They will face new challenges — from clean energy and sustainable manufacturing to smart infrastructure and climate resilience. Yet each idea born in a classroom today carries the power to shape Assam's tomorrow, making growth not only faster, but more balanced and lasting.

A Reflection

At its core, engineering is an act of faith — a belief that human effort and imagination can make life better. Every bridge we cross, every turbine that turns, every code that runs a machine, is built on hope, discipline, and creativity. Engineering connects people, technology, and nature through the simple desire to improve the world around us.

For our young engineers, knowing how things work is important, but understanding why they matter is even more so. When technical knowledge is guided by purpose and a sense of responsibility, it becomes a force for social good. The students of today will carry forward Assam's story of growth — not just by building machines, but by creating opportunities, solving problems, and strengthening communities. Piece by piece, they will shape a stronger, more self-reliant Assam, and in that process, an India that stands confidently on its own by the time we reach 2047.

Comprehensive Guide to Career Opportunities for Mechanical Engineering Students in Assam

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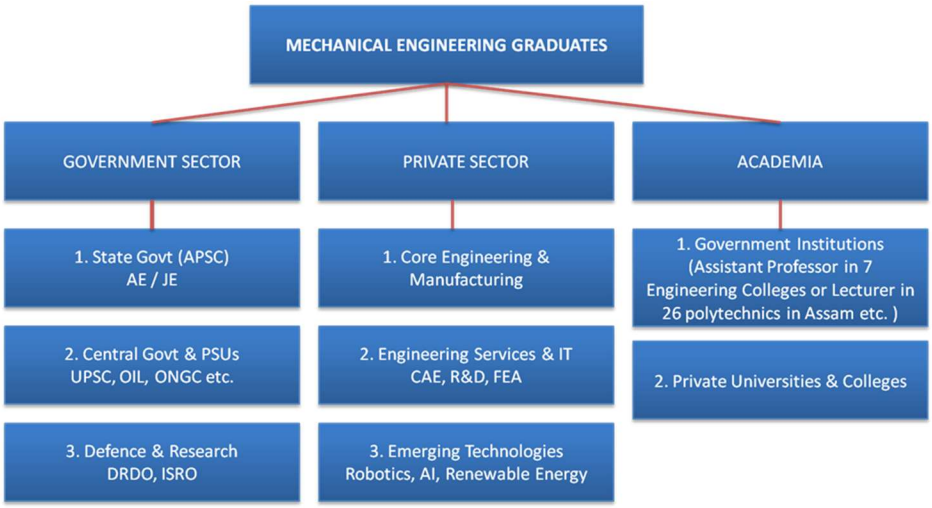
A degree in mechanical engineering opens doors to a vast range of careers. For students in Assam, these opportunities are diverse, spanning the local government sector, private industry, emerging technologies, and academia. The modern engineer is not limited to manufacturing; they are equally sought after in IT services, consulting, and management roles, utilizing their strong analytical and problem-solving skills. This article mainly tries to focus on different job opportunities available for a mechanical engineering graduate in Assam. The public sector continues to be an attractive option because of its stability, reliable employment, and important role in developing public infrastructure.



1. Government Sector

State Government Roles in Assam

The Assam Public Service Commission (APSC) is the primary way people get hired. For mechanical engineers, job opportunities exist in government areas that are key for the state's infrastructure setup:

Assistant Engineer (AE) & Junior Engineer (JE): In these jobs that require specific skills, people will take care of putting plans into action, keeping them running smoothly, and making sure things are well-made in the Public Health Engineering Department (PHED), Water Resources Department, and Public Works Department(PWD)etc.

State PSUs & Boards: Chances come up in power companies such as APDCL,AEGCL, APGCL which are responsible for making and sending out electricity, and likewise in factory-related groups like the AIDC and BVFCL (Brahmaputra Valley Fertilizer Corporation Ltd).

Central Government Roles (Accessible from Assam)

Engineering Services Exam (ESE/IES): Conducted by the Union Public Service Commission, successful candidates are placed in prestigious Group A managerial and administrative roles in key central bodies such as the Indian Railways and the Central Water Commission.

Central Public Sector Undertakings (PSUs): Technical engineering professionals are hired by companies such as Oil India Limited (OIL) and ONGC, both of which have considerable operations in Upper Assam, using their Graduate Aptitude Test in Engineering (GATE) results as a primary criterion.

Defense & Research: For crucial national initiatives, the Defence Research and Development Organisation (DRDO) in conjunction with the Indian Space Research Organisation (ISRO) employs mechanical engineers in the roles of scientists and engineers.

Few organizations name and their official websites has been tabulated below

Organization Name	Official Website Link	Sector
Assam Public Service Commision	https://apsc.nic.in	State Government
Assam Engineering Service Recruitment Board (AESRB)	https://www.aesrb.in	State Government
Numaligarh Refinery Limited (NRL)	https://www.nrl.co.in	Central PSU
Assam Power Distribution Company Ltd. (APDCL)	https://www.apdcl.org	State PSU
Assam Electricity Grid Corporation Ltd. (AEGCL)	https://www.aegcl.co.in	State PSU
Assam Power Generation Corporation Ltd. (APGCL)	https://www.apgcl.org	State PSU
Assam Petrochemicals Limited	assampetrochemicals.co.in	State PSU
Emami Limited	https://www.emamiltd.in	Private Sector

2. Private Sector Opportunities (Assam)

The business world provides quick advancement, new ideas, and a wide range of difficult technical problems. Core Engineering & Manufacturing: Opportunities are available in nearby production facilities, companies that deal with tea processing equipment, and large international companies like Tata Motors in the car industry, L&T in the heavy machinery industry, and the energy industry. Companies like Steels worth and different construction businesses in Assam employ field and maintenance engineers.

Engineering Services & IT: This fast-growing industry uses analytical abilities for design simulation and product research and development for clients all over the world. TCS, Infosys, and L&T Technology Services are among the major companies that hire people in this sector. Emerging Technologies: Students who graduate can work in robotics, AI implementation, data analysis, and new renewable energy businesses, using basic engineering concepts in innovative ways by using computer languages like Python.

3.Academia and Teaching Roles

Those who are enthusiastic about education can find a fulfilling career in teaching, with opportunities available in both state-run and independently operated educational organizations throughout Assam.

Government Institutions: The Assam Engineering Services Recruitment Board (AESRB) is responsible for employing Assistant Professors for state-owned engineering colleges (such as Assam Engineering College and Jorhat Engineering College etc.) along with Lecturers for polytechnic schools.The minimum eligibility qualification for Assistant Professor is M.Tech, while for Lecturer it is B.Tech in the relevant discipline. Additionally, students can pursue higher studies such as M.Tech and Ph.D. at reputed institutions including IITs, NITs, Tezpur University, and other recognized universities in Assam and across India.

Private Institutions: Independently run universities and colleges, for instance, Assam Don Bosco University , Girigananda university, Assam Down Town University and various establishments have the authority to employ their own teaching staff.

Few Important websites that a student use to search for jobs specifically in Assam (government + private + local opportunities)

1. https://jobassam.in/
2. https://assamcareer.com
3. https://jobassam.in/

In conclusion, mechanical engineering in Assam and India provides a resilient foundation for a career that can be deeply technical, administratively focused, or entirely within the modern IT and consulting space. The key to success is leveraging technical skills, gaining practical experience through internships, and continuously upgrading soft skills.

The role of men in gender equality

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Gender equality is often framed as a "women's issue," and mostly focuses on how women must improve themselves or push harder to achieve a more balanced society. However, men play an equally significant role in achieving this goal. Men contribute to half of the population and hold positions of social, economic, and cultural influence; thus, their role is significant in this pursuit. Yet conversations on this topic often include very few men.

While patriarchy has disproportionately affected women, it has also placed men in positions of privilege. Men must recognize these privileges and be willing to step out of them, both at home and in the workplace, such that the society becomes more just towards all genders.

They should actively voice their support for gender equality and challenge systems that perpetuate inequality, even when doing so requires them to give up certain advantages. These can include voicing against unfair household work, gender stereotypes, gender-based roles at homes and workplaces, male based decision making etc.

Women's empowerment is a shared responsibility. Men must hold themselves accountable for participating in discussions against gender inequality. When individuals choose not to speak out, they strengthen the forces that act towards gender inequality. My hope is that whenever conversations about gender equality arise, they include men and women equally, rather than placing the burden of advocating for change solely on women.

Deepor Beel Beckons

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Wetland is one of the astounding gifts of Nature. A landscape having wetland is rich in aesthetic appeal. The ecological service a wetland offers is extremely great as well. It is greater than territorial ecosystem service. Wetlands are commonly branded as Nature's kidneys. Kidney, one of the vital organs of human health, purifies blood by removing toxins and retains substances like water, sugar, aminio acid etc which are boon to human health. So does the wetland for Nature. Unwholesome materials found in water such as excess nutrient and sediments are removed by wetland. Also, removal of industrial and agricultural pollutants and contaminants from water is performed by wetland.

Though Assam is blessed with many wetlands, only one wetland has been accorded the global tag, Ramsar Site. Yes, I feel like to verbalize about Deepor Beel, the unique wetland which hosts winged visitors in winter. Besides magnificent aquatic vegetation, the wetland is home to the fish diversity. A wildlife sanctuary, Deepor Beel remains in the limelight throughout the year. Regularly graced by the wild elephants from the nearby Rani- Gorbhanga Forest, the wetland on the western boundary of Guwahati is not only a blessing for the metropolitan city but for the students and the researchers including environmental enthusiasts who visit the wetland to carry out research work and field study. 10 km southwest from Guwahati it is an important riverine wetland in the Brahmaputra valley. By itself, the wetland, a biodiversity vault is great treat to the eyes. The stunning greenery of hill forest in the backdrop has added vista to it. With the departure of autumn sighting of congregation of aquatic birds makes anybody oblivious to the harshness of winter.

However, what is worrisome now is that all is seemingly not well with the water body. Deterioration of water quality is

a matter to be reckoned with. Once the crystal clear waters of the wetland is now a thing of past. Keeping in view of the rich aquatic diversity, the quality of water must be maintained. Should it be undermined; all the aquatic denizens will be affected by the polluted water. Despite being the lifeline of water-starved Guwahati city Deepor Beel has to shoulder the accumulation of all sorts of filth and wastes of Guwahati. It is not a sewage-dumping site. It needs to be treated the way it deserves being a wetland of global importance.

With the changing of the scenario, instance of floating dead fish in the water of the wetland has often surfaced. What it reflects needs to be addressed instantly with the help of proper and minute scientific analysis.

Carbon Trading, Assam's Bamboo Economy & Bamboo Biochar

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Carbon Trading, also known as the market for trading of carbon emission, is a mechanism that allows countries or organizations to buy and sell carbon credits.

Carbon credits??

It represents the right to emit a specific quantity of greenhouse gases , typically one metric ton of carbon dioxide (CO_2).

How does it work ??

The government or some international authority sets a limit on emission process. Companies or countries are allocated a certain number of carbon credits , which represent the right to emit a specific amount of CO_2 . If they emit less than the allocated amount , they can sell their credits to others who exceed their limits. There are two types of carbon trading : -

Compliance markets : It operates through legally binding caps.

Voluntary Carbon Markets (VCMs) : It operates outside mandatory regulations. It allows businesses or individuals to voluntarily offset their emissions.

These credits allow governments to auction emission permits, generating revenue for climate adaptation and green infrastructure.

How is bamboo related to carbon trading??

"Bamboo is the new future."

Bamboo is a prime candidate for carbon trading due to its rapid growth and high carbon sequestration rate. It allows the farmers to earn income by generating tradable credits for CO_2 captured. Integrating bamboo into farming systems (agroforestry) enhances carbon stocks.. Each credit typically represents one ton of CO_2 removed or avoided. It provides an additional income stream for farmers.

Bamboo absorbs large amount of CO_2 quickly through photosynthesis and stores it in biomass (culms, roots, soil), often faster than many trees. Bamboo has fast growth. Once mature, bamboo groves can be harvested annually for decades as new shoots continuously emerge. We can also opt for producing bamboo in a mass through lab. Tissue culture (micropropagation) is used to culture multiple plants from small tissue samples (explants) in sterile, controlled conditions. This lab method provides rapid multiplication, identical and disease - free plantlets.

Carbon trading, Bamboo & ASSAM

Bamboo is an integral part of Assamese lifestyle and a decades old industry. For centuries, it has shaped the livelihoods of the communities. Being an integral part of the culture and tradition, the Assam bamboo industry has existed for several decades. Assam's bamboo economy is a significant contributor to the state's economy, with over 51 species of bamboo and 2.23 million hectares of bamboo plantations. The bamboo industry has been providing livelihood to thousands of people in Assam, particularly in rural areas.

Bamboo biochar is a type of charcoal produced from bamboo through a process called pyrolysis, where bamboo is heated in the absence of oxygen. This process converts the bamboo into a highly porous, carbon rich material with various environmental benefits. The high content of carbon in biochar makes it an effective carbon sequestration agent. Its porous structure and stable properties make it suitable for soil amendment, water purification and energy storage. Being an effective agent for carbon sequestration, it helps in carbon trading. The bamboo economy of assam has significant potential for a high carbon trader.

NRL BAMBOO PROJECT

The Numaligarh Refinery Limited (NRL) , is projected to set up as bioethanol refinery operating under the joint venture Assam Bio Ethanol Private Limited (ABEPL). The project uses 5,00,000 MT of bamboo to be processed annually using Chempolis' fractionation technology to yield ethanol, furfural, acetic acid and biochar. The biochar would be produced as an output of the project. This biochar can be widely used for many purposes. Since Assam has vast growth of bamboo, this bamboo biochar can widely be produced and it can largely contribute to carbon trading.

The Assam bamboo industry is poised to become the "next petroleum" for Assam. Recognizing the several potentials of bamboo, the government has launched several initiatives to boost its production and utilization. The National Bamboo Mission aims to promote bamboo cultivation and processing, integrating it into the MSME sector through skill development programs like *Hunar Haat.*The bamboo economy of Assam has wide contribution in fixing many climatic and environmental problems. Bamboo economy is the sustainable future.

Beyond Borders: A Quiet Month of Growing in Malaysia

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When I first saw my name on the list of selected individuals for Chief Minister's Green Fellowship Program 2025, for a one-month internship, the feeling was a mix of excitement and quiet disbelief. "Overseas internship" sounded like something distant and extraordinary, which was totally unexpected. Surely there had been a few initial challenges, but then there I was navigating through documents, packing hurriedly, and suddenly standing at Kuala Lumpur International Airport.

The first thing that struck me about Malaysia was its calm rhythm. Even in busy areas, there was an underlying sense of order. Roads were clean, public spaces were respected, and people moved in an unhurried manner. Coming from India, where life is totally chaotic – hustle-bustle in every corner, even more in major cities – the structured pace there felt totally different.

I was assigned to the University of Malaya Power Energy Dedicated Advanced Centre (UMPEDAC), University of Malaya, where I worked on an in-depth COMSOL Multiphysics simulation focusing on the combustion of syngas in a nozzle. Professors, scholars, staffs were very friendly and supportive in every aspect.

Mornings began with getting ready in the shared accommodation at Petaling Jaya (the place where we stayed) with my roommate, followed by commutes via bus or LRTs (their metro system) to the University at Kuala Lumpur. The workday ended at about 5 p.m. leaving us the rest of the time to roam around the place and explore more of Malaysia.

There are a lot of places to visit in and around Kuala Lumpur. The city's connectivity is worth the mention. Everyplace is well connected with an integrated system of metro, rail and bus network. Just a small planning and a public transport ride, you reach place you need to go. Petronas Twin Tower, Batu Caves, Thean Hou Temple, Sunway City, Little India, Petaling Street, etc. were some of the main tourist places I visited during the stay. However, the real joy came from unplanned detours – taking a wrong turn, walking several kilometres to find a bus stop, gazing at tall multi storeys,

discovering quiet bye lanes, or standing on a highway crossing overbridge simply watching the city lights and traffic moving below.

Food became one of the most memorable parts of the journey. Trying out new cuisine, both local and a blend of Indian, Chinese, Malaysian flavours, delighted every taste bud of my tongue. Every meal felt like a small cultural exploration. A significant aspect of the internship was the push towards independence. Simple tasks like figuring out the right platform, right route, recharging a travel card, or ordering food in a slightly unfamiliar setting demanded attentiveness and confidence.

By the time the internship came to an end, Malaysia no longer felt like just a place visited for a short academic program. It felt like a chapter of my life, where learning happened not only in labs, but equally on sidewalks, in transports and at roadside food stalls. Leaving was not as dramatic as reaching there. Just a simple farewell to my guides and a quiet ride to the airport that allowed me to feel the final moments in Malaysia, triggering the question how did one month end so quickly. The internship may have been officially about academic exposure, but what it truly offered was something deeper: a chance to see myself in a new setting, to grow quietly, and to carry back a sense of confidence and clarity that no classroom alone could have given.

Memes: The New Language of Gen Z

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Language has always evolved with time. From handwritten letters to phone calls, from emails to instant messaging, each generation has reshaped how humans communicate. Today, Generation Z—those born roughly between the late 1990s and early 2010s—has taken this evolution a step further. For them, communication is no longer limited to words or sentences. Instead, it often comes in the form of images, short videos, captions, reaction pictures, and ironic humor. In other words, memes have become the new language of Gen Z.

What began as a niche internet joke has now transformed into a powerful cultural and communicative tool. Memes are no longer just for entertainment; they express emotions, opinions, social commentary, and even political resistance. To understand Gen Z, one must understand memes—not as distractions, but as a modern form of language.

The term "meme" was first coined by evolutionary biologist Richard Dawkins in 1976 to describe ideas that spread from person to person like genes. In the digital age, memes have taken a visual and interactive form—images, GIFs, videos, or text-based jokes that are rapidly shared online.

However, Gen Z memes differ from earlier internet humor. They are often layered with irony, self-awareness, absurdism, and cultural references. A single meme can convey sarcasm, frustration, joy, or existential dread—all without a single explanatory sentence. This efficiency is what makes memes such a powerful mode of expression.

One of the most significant reasons memes resonate with Gen Z is their ability to express emotions that are difficult to put into words. Feelings like burnout, anxiety, loneliness, or academic pressure are often shared through relatable memes rather than direct conversation.

For example, a meme showing a character staring blankly with the caption "Me pretending I'm fine during exams" instantly communicates stress and emotional exhaustion. There is comfort in knowing others feel the same way. Memes act as a form of collective emotional release, allowing Gen Z to cope with personal struggles through humor. In a world where mental health discussions are becoming more open but still difficult, memes provide a low-risk way to say, "I'm not okay," without actually saying it.

Memes function like a shared cultural vocabulary. Understanding a meme often requires familiarity with internet trends,

pop culture, politics, or even academic stress. This creates a sense of belonging among those who "get it."

Gen Z uses memes to signal identity—whether it's being a student, an introvert, a procrastinator, or someone navigating the chaos of adulthood. When someone shares or reacts to a meme, it's a way of saying, "You're part of my world."

This shared understanding also draws a subtle line between generations. While older generations may see memes as confusing or meaningless, Gen Z finds depth in their simplicity. The joke is not always in the image itself but in the context surrounding it.

Much of Gen Z meme culture revolves around dark humor and self-deprecation. Memes joking about failure, uncertainty, or existential dread are extremely popular. While this may seem pessimistic, it is often a coping strategy. Gen Z has grown up during economic instability, climate anxiety, global pandemics, and intense academic and career competition. Memes allow them to laugh at situations they cannot control. Humor becomes a form of resilience. Instead of ignoring problems, memes acknowledge them—just in a lighter, more digestible way. This does not mean Gen Z takes life less seriously; rather, they use humor to survive its pressures.

Beyond humor, memes have become a tool for social awareness and political expression. From climate change to gender equality, from exam policies to government decisions, memes simplify complex issues and make them accessible. A well-made meme can spread faster than a long article or speech. It captures attention, sparks conversation, and encourages sharing. During protests or social movements, memes often play a crucial role in shaping narratives and mobilizing young people. For Gen Z, memes are not apathy—they are participation. They are a way to question authority, criticize systems, and express dissent without formal platforms.

In an age of short attention spans and endless scrolling, memes thrive because they are fast and efficient. A meme can communicate an idea in seconds that might take paragraphs to explain. Instead of typing "I am overwhelmed by academic pressure and unsure about my future," a Gen Z student might simply send a meme. The message is clear, immediate, and emotionally accurate. This efficiency does not make communication shallow; it makes it adaptive. Memes are a response to information overload, allowing people to communicate more with less.

Memes also represent a new form of creativity. Gen Z does not just consume content; they remix it. A single meme template can be adapted into thousands of variations, each reflecting a unique perspective. This remix culture encourages participation rather than perfection. You don't need professional skills to create a meme—just an idea and relatability. In this way, memes democratize creativity. They also blur the line between creator and consumer, making communication more interactive and inclusive.

Despite their strengths, memes are not without criticism. Some argue that meme culture promotes oversimplification, misinformation, or emotional avoidance. Important issues can sometimes be reduced to jokes, losing nuance in the process. There is also the risk of emotional suppression—hiding genuine pain behind humor instead of addressing it directly. Additionally, memes can be misinterpreted, taken out of context, or used to spread negativity. However, like any language, memes depend on how they are used. They can either connect or divide, inform or mislead.

To dismiss memes as "just jokes" is to misunderstand an entire generation. For Gen Z, memes are a language of connection, survival, creativity, and expression. They capture emotions, reflect realities, and build communities in ways traditional communication often cannot. Memes speak the language of speed, irony, and shared experience—perfectly suited to a digital-first generation. They are not replacing language; they are expanding it.

As language continues to evolve, memes stand as proof that communication does not always need grammar rules or formal structure. Sometimes, all it takes is a picture, a caption, and a shared understanding to say everything that needs to be said.

London, Beyond the Classroom: An Internship That Became a Life Experience

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My internship at the University of Greenwich gradually evolved into far more than an academic engagement. What began as a structured routine of learning and research quietly unfolded into one of the most memorable chapters of my life. While the lab shaped my professional growth, it was everything beyond it—the people, places, and everyday rhythms—that added a depth no syllabus could ever capture.

Living and interning in London offered an intimate understanding of the city's true character. London is not defined solely by its landmarks, but by the way millions of people coexist in quiet harmony. Diversity here feels effortless—languages, cultures, and traditions blend seamlessly, yet individuality is always respected. There is a shared sense of belonging, where no one feels compelled to explain where they come from.

A day tour of Central London captured the city's unmistakable rhythm. Mornings unfolded with purpose—people walking briskly with coffee in hand, headphones on, yet always aware of one another. Public transport functioned on unspoken rules: orderly queues, mutual patience, and subtle courtesy. Walking through streets once known only through books and screens felt surreal. The city moved fast, confident and alive, yet carried its history with remarkable ease—each landmark both familiar and astonishing, like stepping briefly into a postcard.

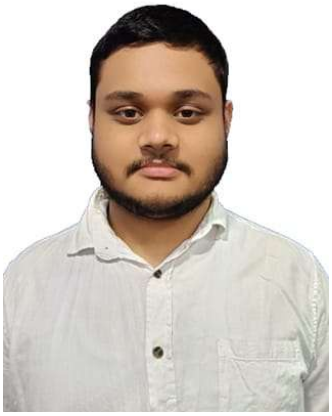
Away from the city's constant motion, life in Chatham offered a calmer, community-driven pace. Evenings by the Medway River revealed another side of England—families strolling, conversations unhurried, and a sense of balance deeply woven into daily life. Visits to St Mary's Island became quiet escapes, where open skies and still waters encouraged reflection. A culturally enriching day trip to the Charles Dickens House added literary depth, grounding the journey in England's creative heritage.

Daily life in London taught me independence, punctuality, and respect for differences. It is a city where harmony is built not on sameness, but on shared values—tolerance, discipline, and understated kindness. And, of course, no experience is complete without food. Simple, iconic dishes like fish and chips and warm jacket potatoes became comforting constants, tasting better because of the moments they were part of.

In the end, this internship gave me more than academic knowledge. It gifted me memories, perspective, and a quiet confidence—shaped by place, culture, and lived experience—that I carry forward long after leaving London behind.

স্মৃতি ধূসৰিত অভিশপ্ত ২০২৫

প্ৰীতম শৰ্মা
প্ৰথম ষান্মাসিক, যান্ত্রিক অভিযান্ত্রিক বিভাগ



নিশা তেতিয়া এঘাৰ বাজি ঊনপঞ্চাশ মিনিট। সমগ্ৰ বিশ্বৰে দৃষ্টি নিৰদ্ধ সময়ৰ কাটাডাললৈ অৰ্থাৎ নতুন বৰ্ষক হেপাঁহৰে আদৰাৰ পূৰ্ণ প্ৰস্তুতিত সকলোৱে আপোন পাহৰা হৈ আছে। ঘাট-প্ৰতিঘাট, সংঘাত, বিষাদ আদি আঁতৰাই মইও নতুনক ন-উদ্যমেৰে আদৰাৰ বাবে মানসিক প্ৰস্তুতি চলাইছিলো।

সময়ৰ কাঁটাডালে ১২ত ভৰি দিয়াৰ লগে লগে আকাশ-বতাহ আলোকিত কৰি ফুটি উঠিছিল হাজাৰ-বিজাৰ ফটকা, গীত-মাতৰ ছন্দত ধ্বনিত হৈছিল আনন্দৰ মধু আলোড়ন আৰু সকলোৱে সমস্বৰে চিঞঁৰি চিঞঁৰি কৈছিল--"Happy New Year"। মুহূৰ্তৰ বাবে আনন্দত সকলোবোৰ বিলীন হৈ গৈছিল। লগে লগে বাজি উঠিছিল মোবাইল ফোন। বন্ধু- বান্ধবী আৰু পৰিয়ালৰ পৰা বিৰামহীন ভাৱে আহিছিল নৱবৰ্ষৰ আন্তৰিক শুভেচ্ছাৰ বতৰা ।সকলোৰে এটাই আশা নৱবৰ্ষৰ প্ৰতিটো পল -অনুপল যেন "Happy New Year" বুলি কোৱাৰ লেখিয়াই হয়; বেদনাসিক্ত দিনবোৰ আকৌ উভতি নাহে --সকলোৰে একেই প্ৰত্যাশা। স্মৃতি ধূসৰিত অভিশপ্ত ২০২৫ৰ দিনবোৰ যেন জীৱনলৈ পুনৰাই উভতি নাহে,তাকেই সকলোৱে কামনা কৰিছিল।

স্মৃতিৰ দলিলত বেদনাদায়ক হৈয়ে ৰ'ব ২০২৫ বৰ্ষৰ জানুৱাৰী মাহ। প্ৰয়াগৰাজ --উত্তৰ প্ৰদেশৰ এক পবিত্ৰ স্হলী। প্ৰত্যেক বাৰ বছৰৰ মূৰত ইয়াতে অনুষ্ঠিত হয় মহাকুম্ভমেলা। বিগত বৰ্ষতো অনুষ্ঠিত হৈছিল মহাকুম্ভমেলা। হৰিদ্বাৰ, উজ্জৈন আৰু নাসিকত হোৱা পৃথিৱীৰ অন্যতম ডাঙৰ ধাৰ্মিক আৰু আধ্যাত্মিক উৎসৱ। গঙ্গা,যমুনা আৰু অদৃশ্য সৰস্বতী নদীৰ সঙ্গমস্হল এই প্ৰয়াগৰাজ হৈছে হিন্দু ধৰ্মালম্বীৰ বাবে অতি পবিত্ৰ স্থান। এই মহাকুম্ভমেলালৈ উত্তৰ প্ৰদেশৰ মুখ্যমন্ত্রী যোগী আদিত্য নাথেও অসমলৈ আহি নিমন্ত্রণ জনাইছিল। এই ধৰ্মীয় উৎসৱত বিশ্বৰ ভিন্ন প্ৰান্তৰ পৰা লাখ লাখ হিন্দু সাধু-সন্যাসীকে ধৰি ধৰ্মপ্ৰাণ লোকৰ সমাগম হৈছিল। প্ৰথম অৱস্থাত সকলো ঠিকে-ঠাকে আছিল। কিন্তু ২৯ জানুৱাৰীত মৌনী অমাবস্যাৰ দিনাখন জনসমুদ্ৰৰ ভিৰত হুলস্থূলীয়া পৰিবেশত পয়ত্রিশৰো অধিক ভক্তপ্ৰাণ ৰাইজ মৃত্যুমুখত পৰিবলগীয়া হয় আৰু সহস্রাধিক লোক আহত হবলগীয়াত পৰে। ধৰ্ম কৰিবলৈ গৈ এনেদৰে মৃত্যুক আঁকোৱালী লবলগীয়া হোৱাটো সছাকৈয়ে অতি দুখলগা ঘটনা।

বিগত বৰ্ষত ফেব্রুৱাৰী মাহটো আছিল আঠাইশদিনীয়া। মাহটোৰ সেই শেষদিনাখনেই উত্তৰাখণ্ডত হিমস্খলন হৈছিল। ইয়াৰ ফলত উত্তৰাখণ্ডৰ চামোলী জিলাৰ মানাৰ সমীপত সীমান্ত পথ সংগঠণৰ এটা শিবিৰৰ ৮ জনকৈ শ্রমিকৰ মৃত্যু হোৱাৰ লগতে কেবাজনো আহত হয়। বছৰটোৰ প্ৰথম দুটা মাহতেই দুটাকৈ মৰ্মান্তিক ঘটনাই মানুহৰ মন ব্যথিত কৰি তোলে ।

মানুহ আশাবাদী। সকলোৱে ভাবিছিল পৰৱৰ্তী সময়ৰ দিনকেইটা ভালকৈ যাব। কিন্তু ২২ মাৰ্চৰ দুপৰীয়া সকলোপিনে বাগৰি যোৱা এটা খবৰে তাল-ফাল লগাই দিছিল। আহমেদাবাদৰ পৰা উৰণৰ কিছু সময়ৰ পিছতে এয়াৰ ইণ্ডিয়াৰ বিমান এ,আই, ১৭১ দূৰ্ঘটনাগ্রস্ত হৈ বিমানখনত থকা ২৪২ জন লোকৰ মৃত্যু হয়। ভাৰতৰ শেহতীয়া বছৰবোৰত সংঘটিত হোৱা অন্যতম মাৰাত্মক বিমান দূৰ্ঘটনা আছিল এইটো।

২২ এপ্রিলত ভাৰততে সংঘটিত হয় বিশ্বৰ অন্যতম শিহৰণকাৰী সন্ত্রাসবাদী আক্রমণ । জম্মু-কাশ্মীৰৰ বৈছাৰণ উপত্যকাৰ পহলগামত পাক-সমৰ্থিত সন্ত্রাসবাদীয়ে পৰ্যটকক আক্রমণ কৰি ২৬ জনকৈ ভাৰতীয় আৰু এজন নেপালী সাধাৰণ নাগৰিক নিহত কৰাৰ লগতে বহুতো লোকক আহত কৰে । ইয়াৰ প্ৰতিবাদকল্পে ৭ মেত ভাৰতীয় সহস্র বাহিনীয়ে পাকিস্তানৰ ভিতৰত প্ৰবেশ কৰি পাক্ সমৰ্থিত সন্ত্রাসবাদীৰ শিবিৰক লক্ষ্য কৰি অপাৰেচন সেন্দুৰ আৰম্ভ কৰে । অতি কম সময়ৰ ভিতৰতে সন্ত্রাসবাদীৰ নটা স্হানত ভয়ংকৰ আক্রমণ কৰি ভাৰতীয় সেনাবাহিনীয়ে সন্ত্রাসবাদীৰ শিবিৰসমূহ

তচনচ কৰি দিয়ে আৰু সন্ত্রাসবাদীৰ বিৰুদ্ধে ভাৰতৰ কঠোৰ স্থিতিৰ বার্তা বিশ্ববাসীক জনাই দিয়ে ।

জুনমাহত ভাৰতৰ উত্তৰ পূৱৰ ৰাজ্যসমূহত ভয়াবহ বাৰিষা বানপানী আৰু ভূমিস্খলনৰ ফলত কমেও ৪৭ জনৰ মৃত্যু হয়। তদুপৰি ৩০ জুনত তেলেংগনাৰ ছাংগাৰেডীৰ চিগাচি ইণ্ডাষ্ট্ৰিজত সংঘটিত ঔদ্যোগিক বিষ্ফোৰণত প্ৰায় ৪৬ জন শ্ৰমিকৰ মৃত্যু হয়। ৯ জুলাইত গাঁথনিগত বিফলতাৰ বাবে গুজৰাটৰ পাদ্ৰাৰ গম্ভীৰা দলংখন ভাঙি ২২ জন লোকৰ মৃত্যু হোৱাৰ লগতে কেবাগৰাকীও লোক আহত হয়। ১৪ আগষ্টত জম্মু-কাশ্মীৰৰ কিষ্টৱাৰত মচাইল মাটা তীৰ্থযাত্ৰাৰ সময়ত হঠাতে ডাৱৰ বিষ্ফোৰণৰ ফলত ক্ষন্তেকীয়া বানপানী আৰু ব্যাপক ধ্বংসলীলা সংঘটিত হয় ।ইয়াৰ ফলত ৬০ জন লোকৰ মৃত্যু হয় ।

ইয়াৰ পিছত ১৯ ছেপ্টেম্বৰত অসম আৰু অসমীয়া জাতিক ম্ৰিয়মান কৰি তোলা আৰু সমগ্ৰ বিশ্বক কপাই যোৱা দুখৰ কাৰুণ্যৰ সংবাদটো আহিছিল। অসমৰ হিয়াৰ আমঠু, প্ৰাণৰ শিল্পী জুবিন গার্গৰ ৰহস্যজনক মৃত্যুৰ বতৰাটো আহিছিল চিংগাপুৰৰ পৰা।বিশ্ব শিল্পী জুবিন গার্গৰ মৃত্যুৰ বতৰা ৰাষ্ট্ৰ হৈ পৰাৰ লগে লগে কেবাদিন ধৰি স্তব্ধ হৈ পৰে অসমৰ জনজীৱন। হতবাক হৈ পৰে সমগ্ৰবিশ্ব।জুবিন গার্গ অকল শিল্পীয়ে নাছিল, তেওঁ আছিল অসম আৰু অসমীয়াৰ হৃদস্পন্দন-হার্টথ্ৰৱ। ইয়াৰ পিছতেই ২৭ ছেপ্তেম্বৰত তামিলনাডুৰ কাৰুৰত অনুষ্ঠিত এক ৰাজনৈতিক সমাবেশত ব্যাপক জনসমুদ্ৰৰ বাবে এক হুলস্থুলীয়া পৰিবেশৰ সৃষ্টি হয় আৰু বেৰিকেডেৰে লৰালৰিকৈ যোৱাৰ ফলত কেবাগৰাকীও লোকৰ মৃত্যু হয়।

১৪ অক্টোবৰত ৰাজস্থানৰ জয়ছালমেৰৰ এখন ব্যক্তিগত বাছত বিদ্যুতৰ শ্বট চার্কিটৰ ফলত ২৬ জন যাত্ৰীৰ নিহত হোৱাৰ লগতে কেবাগৰাকীও যাত্ৰী আহত হোৱাৰ খবৰ পোৱা গৈছে । ইয়াৰ পিছতেই ৩ নবেম্বৰত অসমে বিখ্যাত বাঁহীবাদক দিপক শর্মাক হেৰুৱাবলগীয়া হয়। ৪ নবেম্বৰত ছত্তিশগড়ৰ বিলাসপুৰৰ সমীপত দুখন ৰে'লৰ মুখামুখী সংঘর্ষ হয় । ৰঙা সংকেত অভাৰশ্ব্ৰুট কৰি একেটা ট্ৰেকতে অহা কার্গো ৰে'ল আৰু যাত্ৰীবাহী ৰেলৰ মুখামুখি সংঘর্ষত ৰেল চালককে ধৰি ১১ জন লোকৰ মৃত্যু হোৱাৰ লগতে বিশজনৰো অধিক লোক গুৰুতৰভাৱে আহত হয় । অসমীয়া লোককৃষ্টিৰ অন্যতম বাহক নাগৰা নামৰ শিল্পী ,নাগৰাসূর্য ৰামচৰণ ভৰালীৰ মহাপ্ৰয়াণ ঘটে ।১০ নবেম্বৰত দিল্লীৰ লালকিল্লাৰ ওচৰত সন্ত্রাসবাদীৰ এক বাহন বিষ্ফোৰণত কমেও ১৫ জনৰ মৃত্যু হোৱাৰ লগতে ২০ জনৰো অধিক গুৰুতৰভাবে আহত হয় ।

২০২৫ বর্ষতো অকল অসমৰ বাবেই নহয় ,ভাৰতৰ বাবেও বহুক্ষেত্ৰত প্ৰত্যাহ্বানমূলক আছিল । সন্ত্রাসবাদনির্মূলকৰণকে ধৰি আর্থসামাজিক, বিশ্ব ৰাজনৈতিক ক্ষেত্ৰত ভাৰতে বহু গুৰুত্বপূর্ণ ভূমিকা লব লগা হয়।

যিয়ে নহওঁক, ২০২৬ বর্ষতোৱে অসম আৰু অসমীয়াৰ লগতে ভাৰতৰ বাবে কঢ়িয়াই আনক আনন্দৰ খবৰ ,কঢ়িয়াই আনক সুখ-শান্তি আৰু সমৃদ্ধিৰ বতৰা ।নৱবর্ষত অসমে যাতে কাকো অকালতে হেৰুৱাব লগা নহয় ,পুণৰাবৃত্তি যাতে নহয় ২০২৫ বর্ষৰ সেই অভিশপ্ত দিনবোৰৰ --- ঈশ্বৰৰ ওচৰত তাকেই প্ৰার্থনা জনালো ।

A Month in Malaysia: Learning, Living, and Growing

Abhinab Kakati
8th Semester, ME Department

After being selected under the Chief Minister's Green Fellowship Program 2025, I was given the opportunity to undertake an overseas internship at University of Malaya Power Energy Dedicated Advance Centre (UMPEDAC), University of Malaya, which opened the door to this international academic journey. This one-month internship in Malaysia which began as an academic adventure, gradually became a deeply meaningful personal experience.

I stayed in Petaling Jaya along with three fellow interns from JEC and travelled daily to Kuala Lumpur for our internship. Our mornings usually began with calm and organised metro rides, where people followed queues, maintained order, and treated one another with simple courtesy. Coming from India, this structured yet relaxed lifestyle felt refreshing and helped us adapt to a new rhythm of daily life.

Kuala Lumpur itself felt like a blend of modern development and cultural warmth. Skyscrapers stood beside local food stalls, and different communities lived together with ease. Hearing multiple languages in a single street and finding familiar Indian flavours mixed with Malaysian cuisine made the city feel welcoming rather than unfamiliar.

Moreover, the professors and research fellows at UMPEDAC were extremely supportive, and the warm hospitality we received made our academic journey comfortable and encouraging. Their guidance and openness created a positive learning environment that greatly enhanced our overall experience.

Beyond academics, exploring the city became an important part of the experience. We visited places like Batu Caves, Sunway City, Chinatown, Thean Hou Temple, and Little India, each offering a unique glimpse into Malaysia's cultural diversity and history. These moments added colour to our stay and helped us connect more deeply with the local way of life.

One incident early in my stay became a turning point in building confidence. A SIM card issue left me without mobile connectivity in an unfamiliar part of the city, cutting off access to maps and communication. Navigating public transport independently and resolving the problem directly with the service provider required patience and clear communication. Successfully handling the situation strengthened my confidence, adaptability, and problem-solving skills in a real-life setting.

This internship taught me more than technical concepts. It improved my independence, adaptability, and cultural awareness while giving me a broader perspective on life and learning. By the end of the month, the experience had shaped not only my professional outlook but also my personal confidence in navigating new environments.

অশ্রুসিক্ত শৰৎ

ড° মঞ্জুৰী হাজৰিকা
অধ্যাপকা
যান্ত্রিক অভিযান্ত্রিক বিভাগ

শৰৎ মোৰ প্ৰিয় ঋতু!
আহিনৰ নিয়ৰ সনা পুৱাত শেৱালিৰ সুবাসে আনে শৰতৰ বতৰা।
নীল আকাশত শুভ্ৰ ডাৱৰৰ লুকা-ভাকু,
নৈপৰীয়া কহুঁৱা ডৰাৰ নাচোঁন,
ঘৰমুৱা শৰালিৰ জাক আৰু শাৰদী সন্ধিয়া।
মন উদ্দেলিত এক বহুৰঙী বিচিত্ৰ আবেগত,
মনৰ ভিতৰত গুনগুন এটি শৰতৰ কবিতাৰ সুৰ।

ভবাটো নাছিলোঁ, মোৰ প্ৰিয় ঋতু শৰতৰ কবিতা হব বিষাদসিক্ত,
তোমাক হেৰুওৱাৰ বেদনাৰে!
সদায় নিজৰ মতত চলা অবাধ্য লৰাটো,
ইউকেলিপ্‌টাচৰ দৰে ওখ হব খোজা,
আকাশ গাত ল'ব খোজা, সাগৰ তলিত শুব খোজা লৰাটো আজি নিজেই আকাশৰ তৰা হৈ গ'ল!
তুমি দেখোন আমাৰ ঘৰৰে দুষ্ট লৰাটো,
যাৰ দুষ্টামিবোৰ আমি ' আৰু এনেকুৱা নকৰিবিচোন অ ' বুলি পাহৰি বুকুত সুমাই লওঁ!
জানো, ভাল পাওঁ তোমাক, তোমাৰ গানক,
কিন্তু এনেকৈ ভাল পাওঁনে??
বুকুত সামৰিব নোৱাৰা হাহাকাৰ!

তুমি থাকিবা আমাৰ হৃদয়ত,
তেজত আৰু উশাহত,
আমাৰ সুখ আৰু দুখত,
প্ৰেম আৰু বিৰহত,
কেতিয়াও নেপাহৰা এটা গান হৈ,
এখন বোৱতী নৈ হৈ!

এতিয়া প্ৰতি শৰতে কঢ়িয়াই আনিব তোমাৰ বিষাদ-মধুৰ স্মৃতি!
মনৰ নিজানত তৰাৰ মাজত বিচাৰিম তোমাক!
বিচাৰিম মায়াবিনী ৰাতিৰ বুকুত,
মেঘালী নিশাৰ জোনাকত, ফুলি থকা ফুলত,
শৰতৰ শুকুলা ডাৱৰত,
নিয়ৰসিক্ত বননিত আৰু শেৱালিৰ সুবাসত!
গলাগৈ কেতিয়াও উভতি নহাৰ বাটেৰে!
তথাপি তুমি কোৱাৰ দৰেই
বাটৰে শেষতে বাট চাম তোমালৈ!
তুমি আহিবা আকৌ পৃথিৱী সুন্দৰ কৰিবলৈ।

Today I have realized

Dr. Manash Bhuyan
Assistant Professor, I&PE Department

Life is too short to understand someone,
It is becoming meaningless when you are alone,
It is lengthy when you struggle utmost !
Today I have realized..
Everyday, till yesterday, I think I was becoming older and older,
Until the day I met you, I kept thinking like that.
You taught me very well about life, you changed my perspective towards life,
Today I have realized..
I am afraid of losing you,
I am worried, what should I do to convince you?
You are so damn practical.
Today I have realized..
I don't know why I am losing my focus,
I don't know why my heart is paining like earlier,
I think I have fallen in love with you,
Today I have realized...
Your presence make my boring life happening,
Your smile, your views make me so inclined towards you,
Today I have realized...

Ms. Parishmita Bhuyan
Assistant Professor, ME Department

Present

Why is it too hard to live by?
Is it worth living in the past?
Am I even worthy of the future?
It is all blurry and filled with haze.
The present seems to fade away...

Everything around me feels so unreal.
Constantly thinking and questioning self,
Where is that girl who was so free?
Who was filled with love & hope despite the circumstances.

It's not like I haven't broken any other heart,
Then why now am I acting so mature and empathetic?
People leave, people break, people grow and move on.
That's how the world works.

But that little girl in me is so unattached to worldly things,
yet my heart yearns for attention.
Is this how everything would be?
Would I never truly be at peace with myself?

Indecisiveness is eating me alive.
Dependency. Pathetic, still.
I wish it to pass away.
Constantly worrying,
And yet the brain does nothing to ease out all the pain.
Tired and withdrawn,
That little girl no longer turns when I call her name.

জীৱন

উকা আবেলি , ৰামধেনু আঁকিব খোজা
বগা কেনভাছত
তেজৰ চেঁকুৰা ।
স্তব্ধ দুচকুত , ম্লান হৈ থকা
স্মৃতি বোৰত
বিশাদৰ টুকুৰা ।
সময়ৰ শূণ্যতাত , ভাঁহি অহা
আবেগ বোৰৰ
অৱসন্নতা
নিস্তব্ধ মনত , উভতি অহা
পয়মাল ধুমূহাই আনিছে
আতংকৰ বতৰা
চাঁপি অহা , শব্দৰ প্রতিধ্বনি
আকৌ উটাই আনিছে হেঁৰুৱা
উত্তাল সম্বাদ
তথাপি পাৰত বহি
সহি গৈছে ' জীৱনেই '
সকলো নিশব্দে.....

Rohit Kumar
1st Semester, ME Department

অংকুৰজ্যোতি কৌশিক
PG প্রথম ছেমিষ্টাৰ
যান্ত্রিক অভিযান্ত্রিক বিভাগ

बाकी है

कुछ खाली खाली सा है ,

तुझे अभी पाना बाकी है |

तेरे दिल के मकान में ,

अभी मेरा आना बाकी है |

क्योंकि अभी तुझे दिल का हाल बताना बाकी है ,

तेरे बालों पे हाट फेर के ,

अभी तो प्यार से सताना बाकी है |

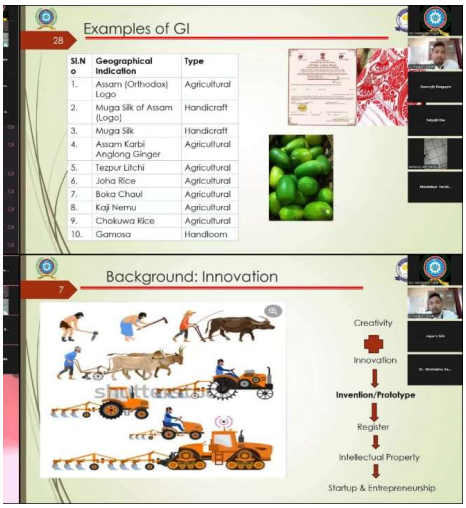
तुझे गले से लगा के ,

दिल की धड़कन सुनाना बाकी है ,

क्यूंकि अभी तुझे दिल का हाल बताना बाकी है |

Faculty Development Program organized by the Mechanical Engineering Department

The One Week Online Faculty Development Programme (FDP) titled "Sustainable Innovation in New Ventures" was organized by the Department of Mechanical Engineering and the Institute Innovation Council (IIC) at Assam Engineering College (AEC), from October 27 to November 1, 2025. This program aimed to integrate sustainability with technological advancements to support budding entrepreneurs in balancing profitability with environmental responsibility. It provided an opportunity for educators and scholars to explore responsible business practices, inspiring future entrepreneurs to build innovations and new ventures that achieve success while minimizing negative societal and environmental impacts.



The FDP was designed for faculty members and research scholars, with no registration fee, and participants could register via a provided link. The sessions ran from 10 am to 3 pm daily, emphasizing sustainable innovation through expert talks on topics like intellectual property, AI, entrepreneurship, biomaterials, funding, and nanotechnology.

Under the leadership of Chief Patron Dr. Bipul Talukdar (Principal, AEC), Patron Dr. Plabon Kakati (HoD, ME Department, AEC), Convener Dr. Manjuri Hazarika, the program featured a diverse panel of resource persons including academics, industry leaders, and entrepreneurs. Co-Conveners Dr. Dimbaliata Deka, Dr. Sushmita Deka, Mrs. Parishmita Bhuyan, Ms. Anindita Mahanta, Dr. Papari Das, and the Co-ordinators Dr. Manash Bhuyan, Jiban Jyoti Kalita, and Debashish Ranjan Nath ensured smooth execution of the FDP.

Day 1: Foundations of Innovation and Sustainability

The program commenced with Dr. Manash Jyoti Borah, Associate Professor and Additional Dean at Assam down Town University, discussing "Intellectual Property Rights" and the protection of green technologies. Mr. Jyotirmoy Chakravorty, CEO of Ubona Technologies, followed with "Sustainable AI," advocating for energy-efficient computing. Mr. Arunjyoti Borgohain, Director and Co-Founder of Yantrabot Technologies Pvt. Ltd., concluded with "Startup Survival," sharing strategies for integrating environmental goals into business models.

Day 2: Prototyping and Funding Strategies

Focusing on execution, Dr. Hirak Ranjan Das, Indovation Manager at AICTE, presented "Prototype Process Design," stressing iterative, eco-friendly development. Dr. Monoj Baruah, Assistant Professor in Mechanical Engineering at Assam Engineering College, followed with "Funding Your Startup," detailing grants and green venture capital avenues for sustainable ventures.

Day 3: Biomaterials and Design for Sustainability

Day 3 explored material innovation with Dr. Emon Barua, Assistant Professor in Mechanical Engineering at MANIT Bhopal, who discussed bio-derived materials for bone tissue engineering. Dr. Payel Deb, Assistant Professor in Mechanical Engineering at Parul University, highlighted converting agro-waste into medical biomaterials. Mr. Rahul Sahni, Faculty in Industrial Design at NID MP, concluded with "Sustainable Innovation," focusing on design thinking and circular economy principles.

Day 4: Business Models and Nature-Positive Technologies

Strategic frameworks were addressed by Mr. Siddhartha P. Lahkar, Manager at North Eastern Development Finance Corporation Limited (NVCL), who provided insights into regional financing in Northeast India. Dr. A.B. Deoghare, Associate Professor in Mechanical Engineering at NIT Silchar, guided participants on using the Business Model Canvas.

Dr. Bikramjit Goswami, Director of IQAC at Assam Don Bosco University, wrapped up by promoting nature-positive technologies to enhance biodiversity.

Day 5: Waste Transformation and Advanced Innovations

The final day emphasized resource recovery, starting with Dr. Sumit Das Lala, Assistant Professor in Mechanical Engineering at Parul University, who detailed converting agro-waste into biofuels. Dr. Pradip Baishya, Professor in Mechanical Engineering at Assam Engineering College, presented affordable, modular designs for solid waste management. Prof. Sunandan Baruah, Director of the Directorate of Innovation, Startup and Acceleration at Assam down Town University, concluded the event with "Nanotechnology Innovations," demonstrating the use of nanomaterials for water purification and energy storage.

The Online FDP was highly effective at enhancing participant understanding and readiness to pursue sustainable innovation in new ventures. The blend of conceptual depth and actionable frameworks significantly elevated faculty competencies and motivation across participating institutions.

The Assam Tribune

FDP conducted at Assam Engineering College

ANN SERVICE

AMINGAON, Nov 9: A Faculty Development Programme (FDP) on 'Sustainable Innovation in New Ventures' was recently organized by the Department of Mechanical Engineering and the Institute Innovation Council (IIC), Assam Engineering College (AEC) from October 27 to November 1 in the online mode.

The one-week FDP consisted of 14 emerging technical sessions. The programme witnessed participation of over 200 registered participants from various institutions and organizations from all over India. Eminent speakers from reputed educational institutions and industries across Assam and other States delivered insightful sessions, a press release stated.

The FDP aimed to sensitize faculty members and researchers to the growing importance of sustainable innovation as a driving force for new ventures and green entrepreneurship.

The organizing committee consisted of Prof Bipul Talukdar (Principal, AEC), Prof Plabon Kakati (Head, Dept of Mechanical Engineering), Prof Bimal Chandra Deka (president, Institute Innovation Council, AEC), Prof Manjuri Hazarika (convenor). The co-convenors of the FDP were Dr Dimbalita Deka, Dr Papari Das, Dr Sushmita Deka, Anindita Mahanta, Parishmita Bhuyan, all Assistant Professors in the Department of Mechanical Engineering and the coordinators were Dr Manash Bhuyan, Jiban Jyoti Kalita, Debashish Ranjan Nath who are also serving as Assistant Professors in the same department.

The sessions of the FDP majorly emphasized on the significance of green products in the entrepreneurship environment. The FDP covered diverse themes under the umbrella of sustainability and innovation, including Intellectual Property Rights, Sustainable AI: From Energy-Hungry Models to Smart Solutions, Entrepreneurship and Startup Survival, Prototype Process Design and Development, Funding Your Startup and Sustainable Innovations in Biomaterials and Nanotechnology. Other notable sessions focused on Waste-to-Wealth Strategies, Solid Waste Management, and Nature-Positive Innovations.

Other Departmental Activities

1. An MoU was signed between Department of Mechanical Engineering and Emami Limited, EPIP Complex, Amingaon. The industry–academia relationship between the Department of Mechanical Engineering and Emami Limited, EPIP Complex, Amingaon, promotes collaboration through internships, industrial training, and industry-based projects. It helps students gain practical exposure while allowing faculty to engage with real industrial challenges. This partnership enhances skill development, employability, and applied research.

2. The Department of Mechanical Engineering will provide academic mentorship and guidance to promote and strengthen STEM education at Jalukbari Girls' High School.

3. Students carried out different projects in their final year implementing their innovative thinking, extensive study of literature review and different modern tools. Suggestions were provided to them in different phases of project progress seminars and were evaluated.

4. Dr. Plabon Kakoti (Head of Department, Mechanical Engineering), Dr. Monoj Baruah, Ms. Parishmita Bhuyan, and Ms. Anindita Mahanta attended the Manak Manthan session organized by the Bureau of Indian Standards (BIS) Guwahati Branch Office on 15 December 2025, centered on two key Indian Standards related to wrought aluminium and aluminium alloys. The interactive event brought together diverse stakeholders, including representatives from local industries—particularly aluminium extrusion firms—academia, and BIS affiliates.

5. Mr. Pranab Jyoti Sarma and Mr. Nilamoni Sarma, Junior Instructor from the Mechanical Engineering Department of Assam Engineering College were invited to Kamrup Polytechnic, Baihata Chariali to conduct extra classes and perform invigilation duty.

Major events organized by the Department of Mechanical Engineering, AEC

1. Engineering The Future Internet of Things (IoT), Instrumentation and Automation in assam Water Infrastructure" Resource Person: Er. Debarshi Mahanta, Asst. Engineer, PHED

2. Beyond B. Tech : Levereging Gate for Higher studies , Research and Career Opportunities" Resource Person: Dr. Shubham Agarwal ,Inspire Faculty , IISC Bangalore

3. Expert Talk on Indian Knowledge Systems, Resource Person: Uday Shanker Dixit, Professor, Department of Mechanical Engineering, IIT Guwahati.

4. One week Online Faculty Development Programme on Sustainable Innovation in New Ventures from 27th October to 1st November 2025.

5. " Thinker based GUI development in Python" Resource Person: Ms. Amrita Pathak, Lecturer Nowgaon Polytechnic.

6. Beyond the Syllabus Lecture on Engineering Ethics with Reference to Indian Philosophy, Resource Person: Mr. Chaitanya Dasa, General Manager, Folk Department Hare Krishna Movement, Guwahati.

7. Industry Institute Interaction Programme on Standards and Standardization Resource person: Shouvik Chanda, Head, BIS Guwahati

8. Application of Classical Mechanics in Engineering Problems, Resource person: Dr. Kalyan Das, Principal: Golaghat Engineering College

9. Interactive session with students on Mechanical Engineering and Industrial production Engineering by Mr. Situsing Hajong, Chief Engineer Electrical N.F.Railway.

10. Entrepreneurship Awareness programme, funded by MSME Govt. of India and School of Energy Science and Engineering ,IIT Guwahati.

Publications of faculty members in 2025

1. Das, Kalyan Kumar, Rupam Deka, Partha Protim Borthakur, Chinmoy Jit Sarma, and Piyush Singh. "CFD analysis of the impact of building shapes on the performance of wind-driven natural ventilation." *Journal of Mechanical Engineering and Sciences* (2025): 10953-10965.

2. Baruah, Namrata Deka, Dimbalita Deka and Kalyan Kumar Das. "Aerodynamic Analysis of NACA 2412 airfoil using ANSYS." *International Research Journal on Advanced Engineering and Management* (2025): 2584.

3. Kalia, Franky Kumar, Basundhara Das and Kalyan Kumar Das. "Investigation of inner and outer Flow field Characteristics of Pyramidal roof rectangular base building due to synoptic wind flow through it by changing the width and height of openings of outlet having same area of both inlet and outlet opening." *International Journal of Multiphysics* (2025): 1750-9548

4. Bharadwaj, Koustuvmoni, Krishna Bharadwaj and Kalyan Kumar Das. "Error analysis in detection of soil moisture using triad spectroscopy sensor." *Sensor Letters* (2025).

5. Muhique, Sahul, Kalyan Kalita and Kalyan Kumar Das. "Analysis of submarine Hydrodynamics and NACA Aerofoils using Ansys Fluent." *Journal of Offshore Structure and Technology* (2025): 2349-8986,

6. Bhaskaran, Akshay Manoj, Arnov Paul, Apurba Roy, Devranjan Samanta, and Purbarun Dhar. "Hydrodynamics of Liquid Mushrooms." *Langmui*r (2025).

7. Deka, Sushmita, Abhishek Kamal, Ramesh Babu Pallekonda, Vinayak Kulkarni, and Niranjan Sahoo. "Sensitivity study of force recovery algorithms for aerodynamic drag assessment on a spiked blunt body in high-speed regimes." *Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering* 239, no. 8 (2025): 818-829.

8. Malakar, Chaiki, R. Ravivarman, and Sushmita Deka. "Optimization of tribological performance parameters with varying percentage of Halloysite nanotube in polylactic acid/bamboo/kenaf hybrid sustainable biocomposites." *Polymer Bulletin* (2025): 1-21.

9. Mazarbhuiya, Rashed Mustafa, Sushmita Deka, Maneswar Rahang, and Dhinakaran Veeman. "Analysis of Output Performance Measures of Coating in EDM by Non-Dominated Sorting Using Pareto Front." *Journal of Molecular & Engineering Materials* 13, no. 2 (2025).

10. Baruah, Jitul, and Gangotri Borah, "Numerical Investigation of Water Flow Dynamics in a Water Cooled Chiller Used in a Office Area." *International Journal of Multidisciplinary Research* (2025): 1-9.

11. Baruah, Jitul, Gangotri Borah and Tapash Kumar Ghosh, "Cooling Load Estimation of an Office Area Using $CLTD_c$ Method for Improvement of Indoor Air Quality." *Journal of Emerging Technologies and Innovative Research* (2025).

12. Das, Papari, Sanjib Kr Rajbongshi, Beesesh Gurung and Aajaruddin Ansari, "Fabrication and Application of Various Composites and Other Novel Materials in Impact Energy Absorption: A Review." *Transactions of the Indian Institute of Metals* (2025): 79:19.

13. Rupam Deka, Das K.K, Borthakur P P, 2025, "Numerical investigation of the influence of roof pitch on the natural ventilation efficiency", 6th ICRAME NIT Silchar, (February 2025).

14. Rishamoni Hazarika and Manjuri Hazarika, "Optimization of End Milling Process Parameters on AISI 1018 Steel for Enhanced Material Removal Rate and Surface Finish", International Conference in Advances in Materials, Manufacturing and Industrial Management - AM3-2025, NIT Kurukshetra, 7-8 November 2025.

15. Madhurish Chakraborty, Arnavnandan Baruah, Debashish Ranjan Nath, Dr. Manash Bhuyan, "Thermo-Hygric Equilibrium: Re-engineering Indian Knowledge Systems for Passive Cooling in a Warming Humid Climate", National Seminar on Vikshit Bharat 2047: Inclusion and Sustainability, Manohari Devi Kanoi Girls' College Dibrugarh, 16 Dec 2025.

16. Dipanka Bhuyan, Jiban Jyoti Kalita, Debashish Ranjan Nath, "Towards Achieving SDG 7 (Affordable and Clean Energy): Collaborative Roles of Engineering and Science Disciplines in Higher Education.", Assam Don Bosco University, Guwahati, 13 Sep 2025.

17. Kaustabh K. Deka , Monoj Baruah, A Comparative Study and Analysis of Shell and Tube Heat Exchanger Using Nanofluid, International Multidisciplinary Research Journal Reviews (IMRJR), Volume 2, Year 2025, Pages 22-33

18. Hrishikesh Bhattacharyya, Monoj Baruah, Anil Borah, Study on Hardness Behaviour & Microstructure of Al0.88Mg-0.35Si alloys Micro Alloyed with 0.02 wt.% Sn, International Conference on Mechanical & Industrial Technologies (ICMIT 2025), Muzaf arpur Institute of Technology Muzaf arpur, Bihar, India Pin – 842003.

19. Kaustabh K. Deka , Monoj Baruah, A Comparative Study and Analysis of Shell and Tube Heat Exchanger Using Nanofluid, International Conference on Mechanical & Industrial Technologies (ICMIT 2025), Muzaf arpur Institute of Technology Muzaf arpur, Bihar, India Pin – 842003.

Achievements of faculty members in 2025

The BIS Award for Exemplary Integration of the Module on Basics of Standardization in the First Year Engineering Curriculum was received by Dr. Plabon Kakoti, BIS Nodal Officer and Head of the Department of Mechanical Engineering, on behalf of Assam Engineering College, from the Union Minister of Consumer Affairs and Human Rights, Government of India, on 14th October (World Standards Day) at Noida, Uttar Pradesh.

DR. MONOJ BARUAH

1. Alongwith Dr Anil Borah, Prof. Narendra S Chaudhari and Mr. Ikramul Hossain Mondal were awarded a patent titled “Stirrer for casting of Aluminium Alloy” by The Patent Office, Government of India.
2. Alongwith Mr Suraj Konwar and Mr. Ikramul Hossain were awarded a patent titled “Solar Tracking System with Adjustable Reflectors” by The Patent Office, Government of India.
3. Received State Award to Teachers 2025, on the occasion of 64th Teachers Day at Kalaguru Bishu Prasad Rabha Auditorium, Tezpur University.

DR. KALYAN KUMAR DAS

1. Appointed as a member of the BOS of Mechanical Engineering of Assam Science and Technology University ASTU/BOS/ME/2018/433 dated 11-04-2025.
2. Appointed as Chairman of the BOS of Industrial and Production Engineering of Assam Science and Technology University (ASTU/BOS/IPE/2018/468 dated 06-05-2025.
3. Appointed as Principal of Golaghat Engineering College vide Government of Assam Notification eFile no 677797/28 dated 20-07-2025 with first nomination for the post of Principal of Government Engineering Colleges by AESRB vide ASERB/068/2024/1088 dated 19-07-2025.

DR. PRASANTA KUMAR CHOUDHURY

1. Played the role as one of the resource person cum expert in the ***'Workshop on Comprehensive Glossary of Engineering'*** for Trilingual Glossary of Engineering in Assamese Language held at the IST, GU from 7th to 12th July, 2025.
2. Was invited by Assam Don Bosco University, Azara, Ghy-17 as the ***Guest of Honour*** to deliver talk in the Inaugural programme of the ***University Week (D' Verve 2025).***
3. Delivered talk on ***'Role of Music in Enhancing Education'*** as part of the 1st semester Induction Program in Dhemaji Engg College held on 21st August, 2025.
4. Got invited as a resource person by the Music Club, Gauhati University to deliver talk on Folk and Modern Musical Instruments as a part of the Academic Syllabus for the session 2025-26 held on 11th October, 2025 in the Department of Education, Gauhati University.
5. Played the role as one of the mentors for Mr. Susanta Kumar Kakoti (Team Leader) and Mr. Abhishek Chakraborty (Member) for the project titled ***'Development and Design of Automated Lumbar Flex Bed'*** nominated for AICTE Productization Fellowship (APF) held under YIC (Yukti Innovation Challenge, 2025).

Achievements of students in 2025

1. Assam Engineering College is proud to announce that our 3rd-semester BTech team has been selected for the National Finals of the Smart India Hackathon 2025, marking a significant milestone in our campus innovation journey. Led by Bibek Bharadwaj alongside members Manas Kumar Das, Gaurav Choraria, Jit Debnath, Niharika Choudhury and Hema Das the team has successfully turned a creative concept into a viable technical prototype. With the strong academic backing of AEC, these students have demonstrated that they can build real-world solutions that meet industry standards. We congratulate them on this achievement and look forward to seeing them showcase their skills on the national stage.

2. A final year project entitled "Design and fabrication of low-cost cargo tricycle for traditional weavers and traders of Assam" undertaken by Devraj Debnath and Habibur Rahman Khan of 2023-24 batch, under the guidance of Dr Plabon Kakoti (Professor, AEC) and Dr Vikramjit Kakati (Professor, Don Bosco Institute of Technology) was successfully converted to a usable product named 'Jeevika Cart' through a joint effort of Mechanical Engineering departments of AEC and Don Bosco Institute of Technology. The project was funded by NABARD and the product has been distributed to the traders in the locality near Kaziranga National Park.

   On 23rd August, 2025, the product was officially launched at Don Bosco Institute of Technology, in the presence of officials from NABARD and members of AEC and Don Bosco community.

3. Under Chief Minister's Green Fellowship Program 2025, Bibhavdeep Talukdar, and Abhinav Kakati, of 8th semester, ME were selected for Foreign Internship at University of Malaya Power Energy Dedicated Advanced Centre (UMPEDAC), University of Malaya, and Suhasini Baishya 8th semester, ME was selected for Foreign Internship at the University of Greenwich.

4. Abhilashha Phukan, 2nd semester ME student, got 2nd prize for singing in Xur Monjuri 2025 organised by AEC JAM CLUB.

5. Abhinov Phukan, 3rd semester ME student was awarded best Goalkeeper year 2024-25, in a memorial tournament organised by Hostel 4, AEC. Also, he received 2nd prize in Robo Race conducted during Prajyukttam 2025 organised by the Mechanical Club, Assam Don Bosco University, Azara.

6. Nasheet Raihan Choudhury has actively participated in the Ujjwala Stall Fiesta 2.0 under Ujjwala 2.0, showcasing their creative work through their stall titled The MagTea Bar. He also has successfully completed a full day hands-on workshop on 3D printing at TIH IIT Guwahati.

7. Based on the outstanding performance during the July–December 2025 semester, the AEC Local Chapter has been officially rated as an Active Local Chapter by NPTEL. These students from the Department of Mechanical Engineering (ME) have successfully earned prestigious NPTEL Elite + Silver certifications.

- K Caroline Richa (Securing position in the top 5% of the course in English Language for Competitive Exams)
- Siddharth Shankar Mishra (Product Design and Development)
- Swastika Bordoloi (Product Design and Development)




PhD awarded

1. Dr. Koutuvmoni Bharadwaj (2025)
   Topic:“ Separation of municipal solid waste based on their biodegradability using triad spectroscopy sensor”
2. Dr. Franky Kumar Kalia (2025)
   Topic: “Investigation of macro Flow Dynamics of Wind Flow in pyramidal Building Subjected to Synoptic Wind Condition”
3. Dr. Prasanta Kumar Choudhury (2025)
   Topic: “Experimental Investigation of a VCR Four Stroke Cylinder direct injection diesel engine fueled with waste cooking oil (WCO) biodiesel and comparison of engine performance and exhaust emission using multi response optimization techniques”

Promotions

1. Dr Prasanta Kumar Choudhury got promoted as Professor (under CAS) on 17th November, 2025 in the Department of Mechanical Engineering, AEC
2. Dr Jitul Baruah got promoted as Professor (under CAS) on 17th November, 2025 in the Department of Mechanical Engineering, AEC.

Dr Prasanta Kumar Choudhury

Dr Jitul Baruah

Retirements in the Department of Mechanical Engineering, AEC

Dr. Pradeep Kumar Mahanta
Retd. Prof and Head

Dr. Kalyan Kalita
Retd. Principal, Head and Professor

New recruitments in the Department of Mechanical Engineering, AEC

Mr. JibanJyoti Kalita

Mr. Apurba Roy

Mr. Sanjib Biswas

Mr. Debashish Ranjan Nath

Mr. Anirban Saha

Dr. Sushmita Deka

Ms. Parishmita Bhuyan

Ms. Anindita Mahanta

Dr. Papari Das

List of Awardees

Pratul Chandra Baruah Merit Award Scholarships 2025 for UG (Mechanical)

Sucheta Adhikari
(Best Freshman Scholar) for securing highest CGPA in 1st & 2nd Semester

Shubhrajit Bori
(Best Sophomore Scholar) for securing highest CGPA in 3rd & 4th Semester

Shyamali P Kashyap
(Best Junior Scholar) for securing highest CGPA in 5th & 6th Semester

Swarup Jyoti Das
(Best Senior Scholar) for securing highest CGPA in 7th & 8th Semester

List of Awardees AEC Merit Award Fund

B. Tech (Mechanical Engineering)			
Sl No.	**Semester**	**Name of Student**	**Award Name**
1	3rd Semester	Shubhrajit Bori	Anil Anand Award
2	4th Semester	Geetarth Borgohain	Branch Topper
3	5th Semester	Antara Duara	Branch Topper
4	6th Semester	Shyamali P Kashyap	Pitambor Goswami Award
5	7th Semester	Swarup Jyoti Das	Anil Anand Award
6	8th Semester	Swarup Jyoti Das	Prof. A K Padmapati Award for Best ME Graduate
B. Tech (Industrial and Production Engineering)			
Sl No.	**Semester**	**Name of Student**	**Award Name**
1	5th Semester	Banjit Kashyap	Branch Topper
2	6th Semester	Banjit Kashyap	Branch Topper
3	8th Semester	Rekib Ahmed	Branch Topper

Class Representatives

Shyamali P Kashyap
8th Semester, ME

Bibhavdeep Talukdar
8th Semester, ME

Aweishka Jaishi
8th Semester, I&PE

Nishant Rabha
6th Semester, ME

Pritam Jyoti Nath
6th Semester, ME

Eamonn Thakuria
6th Semester, I&PE

Ayan Swarnil Dutta
4th Semester, ME

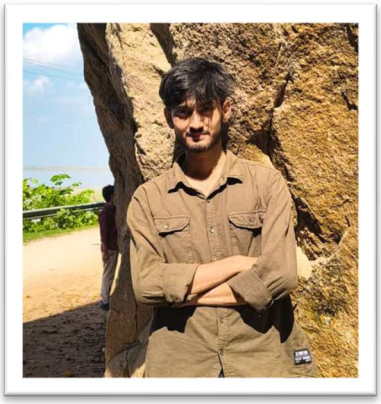
Bhargavjyoti Buragohain
4th Semester, ME

Aikham Seng Kamthong
4th Semester, I&PE

Nasheet Raihan Choudhury
2nd Semester, ME

Chitrangada Baruah
2nd Semester, I&PE

Training and Placement Cell



Tahmid Hassain Barbhuyan, 8th Semester
Training & Placement Coordinator

Samudra Shikhar Saikia, 8th Semester
Training & Placement Coordinator

Sudipta Hazarika, 6th Semester
Training & Placement Coordinator

Bhargabjyoti Phukan, 6th Semester
Training & Placement Coordinator

Student recruitments (2024-2025 Batch)

Sl. No.	Company	Selected Student	Branch
1	Teachnook	Sunirmal Chattopadhyay	ME
2	Teachnook	Saptorshi Gupta	ME
3	Teachnook	Sanjib Barman	ME
4	ORC Engineering Pvt. Ltd.	Abhilash Saikia	ME
5	ORC Engineering Pvt. Ltd.	Viveek Das	ME
6	ORC Engineering Pvt. Ltd.	Himangshu Rajbongshi	ME
7	ORC Engineering Pvt. Ltd.	Udeepta Pathak	ME
8	Ashok Leyland	Ritisha Baruah	ME
9	Ashok Leyland	Saptorshi Gupta	ME
10	Escorts Kubota Limited	Anish Nirola	ME
11	BCPL	Samiran Das	ME
12	Gulf Asia	Aakrit Gogoi	ME
13	Drishtee Foundation	Jigyash Baruah	ME

14	TVS Motor	Nafis Raihan Barbhuyan	ME
15	NRL	Aniket Das	ME
16	NRL	Angshuman Gogoi	ME
17	Putzmeister	Abhhijit Dey	ME
18	Putzmeister	Kriishanu Baruah	ME
19	Vikash Group	Parthiv Dev	ME
20	Vikash Group	Ankita Dutta	ME
21	Larsen & Toubro	Anish Nirola	ME
22	Larsen & Toubro	Shreya Lopmudra	ME
23	Oil India Limited	Nihar Ranjan Patra	ME
24	Oil India Limited	Swarp Jyoti Das	ME
25	Vedanta	Pranjal Das	ME
26	Vedanta	Subhadeep Mukharjee	ME
27	Vedanta	Parthiv Dev	ME
28	Vedanta	Ayanabh Hazarika	ME
29	Vedanta	Debarshi Bayan	ME
30	Hincol	Subhrajyoti Bhuyan	ME
31	Listen Lights Pvt. Ltd.	Paran Ssonowal	ME
32	Listen Lights Pvt. Ltd.	Afridi Ansari	ME
33	NRL	Raktim Gogoi	ME
34	HPL	Manish Sharma	ME
35	Teachnook	Rekib Ahmed	I&PE
36	Planet Spark	Krishadip Sarma	I&PE
37	Listenlights Pvt. Ltd.	Rekib Ahmed	I&PE
38	Listenlights Pvt. Ltd.	Asim Bordoloi	I&PE

Student recruitments (2025-2026 Batch)

Sl. No.	Company	Selected Student	Branch
1	ORC Engineering	Simanta Borah	ME
2	ORC Engineering	Prashenjit Boruah	ME
3	ORC Engineering	Prachurjya Borbaruah	ME
4	ORC Engineering	Jyotishman Bhuyan	ME
5	Rausheena Udyog Ltd	Jyotirmoy Saloi	ME
6	Planet Spark	Bastab Bora	ME
7	Planet Spark	Prince Kumar Singh	ME
8	Planet Spark	Bikash Bhujel	ME
9	Tata Hitachi	Kausik Kumar Gayari	ME
10	Ashok Leyland	Tahmid Hassan Barbhuya	ME
11	Ashok Leyland	Saniran Sil	ME
12	High-Technext Engg. Pvt. Ltd.	Nilotpal Dutta	ME
13	High-Technext Engg. Pvt. Ltd.	Abhinab Kakoti	ME
14	Escorts Kubota Limited	Suhasini Baishya	ME

15	Escorts Kubota Limited	Swastika Bordoloi	ME
16	MyCaptain Learning Group	Shyamali P Kashyap	ME
17	TVS Motors	Arindam Goswami	I&PE
18	Dromkart India	Aweishka Jaishi	I&PE
19	High-Technext Engg. Pvt. Ltd.	Arunavo Paul	I&PE
20	High-Technext Engg. Pvt. Ltd.	Prajnan Deka	I&PE
21	Escorts Kubota Limited	Rupendra Singha	I&PE
22	Escorts Kubota Limited	Shivmoni Das	I&PE
23	MyCaptain Learning Group	Yesonpiya Chowlek	I&PE

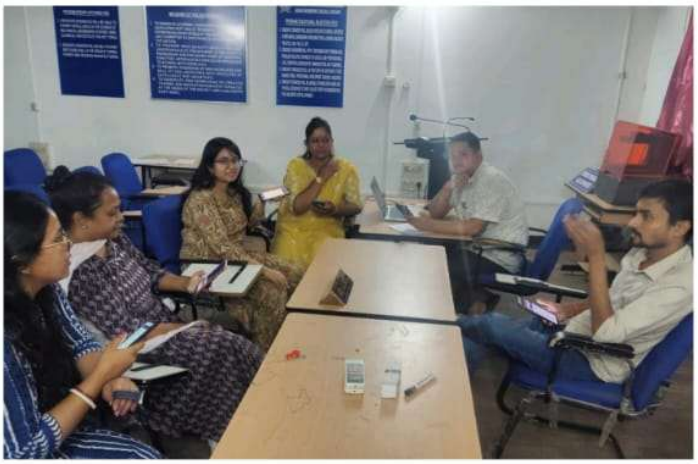
Industrial Visits

Visit to Emami Limited, Amingaon, Kamrup

Visit to North East Nutrients Private Limited (NENPL), Ramhari Mangaldai, Assam


RENEWABLE ENERGY & ELECTRIC VEHICLE EXPO


northeast
nutrient




Emami LIMITED
EPIP Complex, Amingaon, Guwahati
TPM GALLERY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Appliance Vocational Training by Godrej Good & Green


DEPARTMENT OF
MECHANICAL ENGINEERIN
ASSAM ENGINEERING COLLEGE, GUWAHATI


RECEPTION


Pluton


RECEPTION