NATIONAL ENGINEERS' DAY : ENGINEERING THE FUTURE OF INDIA

ENGINEERS CREATE A WORLD THAT HAS NEVER EXISTED BEFORE. THEY LEAD THE INNOVATION, PROBLEM-SOLVING, AND TECHNOLOGICAL ADVANCEMENTS, WHICH ARE CRUCIAL FOR A NATION'S GROWTH

India's engineers are working tirelessly to make their nation a super tech world power. To honour and recognise their hard work, India celebrates National Engineers' Day every year on September 15. This celebration has been held every year in the country since 1967.

This day marks the birth anniversary of legendary Indian civil engineer, Bharat Ratna Mokshagundam Vishweshvaraya (MV). Sir MV worked as one of the chief engineers for the flood protection system for Hyderabad as well as the chief engineer of the Krishna Raja Sagar dam of Mysore city.

He was also called the precursor of economic planning in India. His learned discourse on economic planning in India, Planned Economy for India and Reconstructing India, was the first available document on the planning effort of the country and is still held as the parent source matter for economic planners.

This time, the Engineers' Day will be celebrated on Friday on the theme of 'Engineering for a Sustainable Future'. It will highlight engineers' roles in addressing the global challenges.

Engineers possess all the skills required to build a sustainable and greener world. This year's theme encourages them to focus on creating solutions to not only meet the present needs but also safeguard the well-being of future generations.

India, on its quest to become a global superpower, has made significant moves towards developing its engineering sector. The country's engineering sector comprises manufacturing iron, steel, metal, industrial machinery, automobiles, auto components, and other engineering products.

THE VISION OF ATMANIRBHAR BHARAT

Hundreds of engineering colleges across India churn out over 15 lakh engineers every year. Engineering is one of the most sought-after careers, and largest industrial sector in India.

This sector has witnessed remarkable growth in the last few years, driven by increased investment in infrastructure and industrial production.

It contributes to 3.53% of the country's Gross Domestic Growth (GDP). It accounts for 27% of the factories, represents 63% of the foreign collaborations (IBEF), and has a 30% weight in India's Index of Industrial Production (IIIP).

It is the largest foreign exchange earner and largest contributor to India's overall exports with a share of 23.9% (during 2022-23). As per the report of Engineering Export Promotion Council of India (EEPC India), The USA retained its position as the top destination of Indian engineering exports during April-March 2022-23 with engineering exports worth US $ 107.04 billion followed by the UAE and Germany.

THE ENGINEERING COMPANIES IN INDIA HAVE SHIFTED THEIR FOCUS TO VALUE ADDED PRODUCTS AND HAVE BECOME MORE CONSCIOUS ABOUT THE DELIVERY THEY MAKE

Engineering exports from India, after reaching its all-time high at USD 112.16 billion during fiscal 2021-22, finished fiscal 2022-23 at USD 107.04 billion conceding a decline of 4.57 percent. Despite lower exports in 2022-23, engineering exports surpassed the predicted value of USD 105.82 billion set by Government of India for 2022-23. The export of India's engineering goods is expected to reach US $200 billion by 2030. India also has plans to invest US $ 34.2 billion by 2030 to set up an interstate transmission network (ISTS) in order to evacuate renewable energy.

INNOVATION FOR DEVELOPMENT

The engineering companies in India have shifted their focus to value added products and have become more conscious about the delivery they make. They are constantly upgrading their technology to meet the global requirements and have started making significant investments in research and developments.

India has become a popular choice for Engineering Research and Development (ER&D) services for multiple reasons. It is establishing itself as a hub for innovation and technology by leveraging its strong and vibrant start-up ecosystem. It is gaining considerable boost by the government investment of Rs. 76,000 crores under the Design-Linked incentive (DLI) scheme for domestic semiconductor, R&D and manufacturing. Apart from the government, companies are also spending time and money in developing ER&D.

According to Industry body NASSCOM, India's engineering R&D market is expected to increase at a CAGR of 12 to 13% to achieve USD 63 billion by 2025.

According to the Deloitte and NASSCOM 2022 Global Engineering R&D Pulse Survey, 85% of organisations use a Global Capability Centre (GCC) for their ER&D activities. India alone has over 1250 GCCs where companies can outsource their product development and receive product engineering services. These GCCs are home to some of the largest companies, many of which have their largest or second largest R&D centres located in India.

INDIA'S EMERGING PROMINENCE AS A SEMICONDUCTOR SUPERPOWER

The world has identified India's capabilities to create environmentally friendly goods and services, secure environment for handling sensitive data and protecting intellectual property, and designs that reduce the time-to-market for new products. More than 90 percent of modern engineers in India are keen on accelerating their learning curve and are enhancing their skills in Artificial Intelligence, Cloud computing and other new-age technologies. Emerging technologies like Artificial Intelligence (AI), Internet of Things (IoT), and 5G have the potential to reshape industries and societies. India's semiconductor industry is at the forefront of driving disruptions in these domains with its expertise in designing and manufacturing semiconductor components that power AI algorithms, IoT devices, and high speed 5G networks positions.

The Indian semiconductor market was valued at approximately $23.2 billion and is projected to reach $80.3 billion by 2028, growing at a compound annual growth rate of 17.10% during the forecast period. The continuous rise in demand for semiconductors, India, with its world's largest young population and robust education system, has the potential to become a talent powerhouse in the semiconductor industry.

India's greatest asset lies in its vast reservoir of highly skilled and talented workforce. There are a total 600,000 to 700,000 semiconductor engineers in the world, and 20 percent of the total engineers are in India. The outer ring road of Bangalore city has a concentration of 50,000 to 70,000 defined semiconductor engineers who are into semiconductor refining.

A HOTSPOT FOR FOREIGN CAPITAL

The engineering sector in India has been de-licensed and enjoys 100% FDI. With 100 percent FDI through the automatic route being permitted, major international companies such as Cummins, ABB, Alfa Laval, SANY Group and Schneider Electric have invested in the Indian engineering sector. American plane maker Boeing Corporation has recently launched the Boeing India Engineering & Technology Centre in Bengaluru.