A TWO-DAY INDUSTRIAL VISIT at Visakhapatnam

A comprehensive report based on our industrial tour, which took place from August 8, 2024, to August 10, 2024, at Swarnandhra College of Engineering and Technology, and was sponsored by the Power & Energy Society Chapter and Women In Engineering AFG of IEEE Swarnandhra Student Branch.

There were two faculty members and twenty-five students involved in this two-day industrial visit. They learned more about the working models at the Naval Science & Technology Laboratory in Visakhapatnam, the manufacturing process of the Vizag Steel Plant, and the technical features of Floating Solar power plant, Meghadrigadda Reservoir. Employers and scientists expressed interest in providing insightful feedback to the student body.

1) **07/08/2024-Started from college at 8.45pm**

2) Vizag Steel Plant, Visakhapatnam on 08-08-2024

Students Reached VIZAG STEEL MUSEUM by 10:30 am and took a get pass to the museum where entered to hall. Started teaching by 11:00 am

History of vizag steel museum:

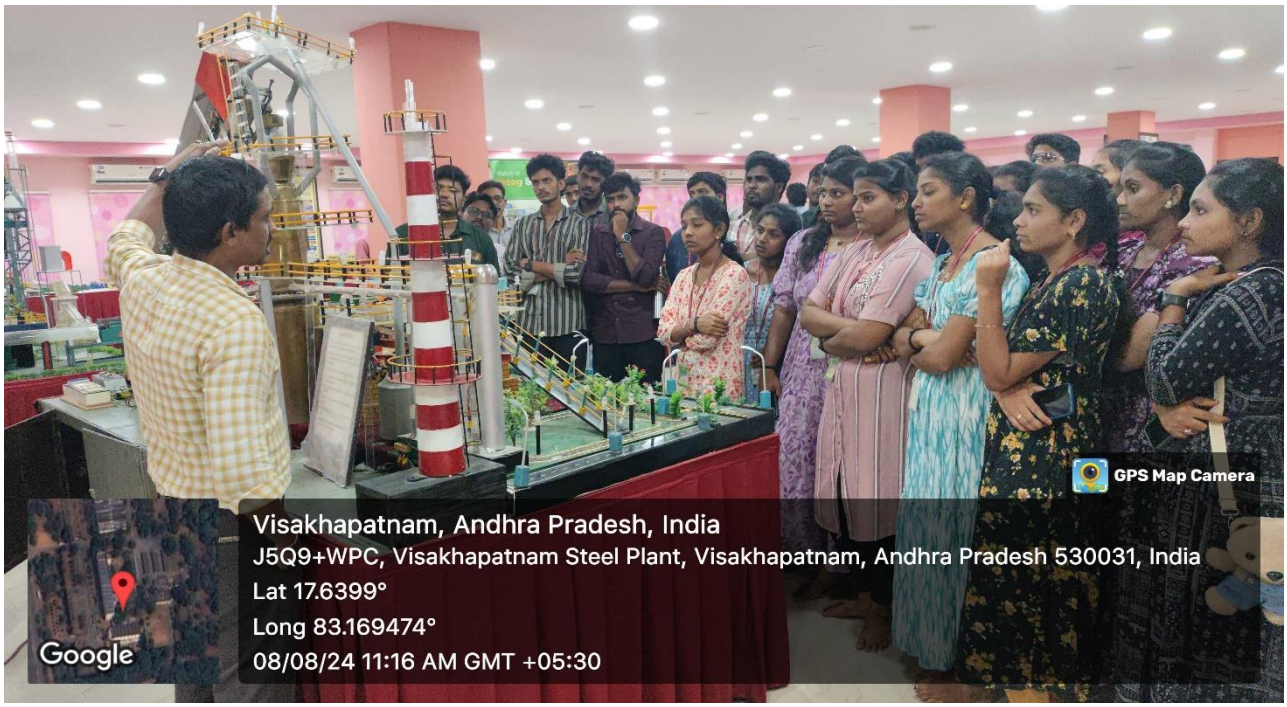
Visakhapatnam steel plant, an integrated steel plant under the based integrated steel plant in the country, constructed with then latest state of the art technology. the plant with a rated capacity of 6.3mt is a producer of steel products in the longs category like wire rod, re-bars, angles, channels, blooms and billets.

Evolution of the plant:

Visakhapatnam steel plant was conceived in the year 1970 as a unit of steel Authority of India Limited (SAIL) to augments its long products capacity and to serve the southern markets. Announcements for Visakhapatnam steel plant was made in the parliament in the year 1970 and the foundation stone was laid in 1971 by the late prime minister smt.Indhira Gandhi.the feasibility report of the plant was made in 1973 and the indo-soviet agreement was signed in 1979.the comprehensive detailed project report was made in 1980 and the project was sanctioned by government of india in 1982. In the same year,a separate company called Rashtriya Ispat Nigam Limited(RINL) was formed.

Visakhapatnam Steel Plant is the integrated steel plants of Rashtriya Ispat Nigam Limited in Visakhapatnam. Founded in 1982, the plant focuses on producing value-added steel, producing 5.773

million tonnes of hot metal, 5.272 million tonnes of crude steel and 5.138 million tonnes of saleable steel in the 2021-2022 financial year.[1] According to the India Daily Times, the plant is expected to skyrocket in terms of production in the nearest future.



Rashtriya Ispat Nigam Ltd, the corporate entity of Visakhapatnam Steel Plant, is facing severe iron ore shortage as the rail track on the Kothavalasa-Kirandul (K-K) line has been damaged.

Iron ore to the steel plant is sourced from the Bailadila mines of NMDC through the K-K line and there was a landslide at Ananthagiri in Visakhapatnam district last month during torrential rains.

The railway bridge and the track were badly damaged in the Eastern Ghats, and repair works are currently going on. Traffic on the line was stopped and iron ore is being supplied to the plant through an alternate route via Rayagada in Odisha.

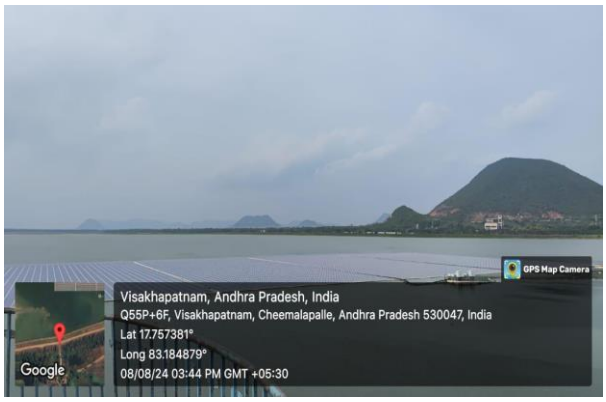
After completion of section, we thank him to sir and we take a one picture. And we walk to out block we enjoying with nature in the surroundings of vizag steel museum. And we doing some game upto 1:00 pm . We had a lunch and taking some pictures and funny joke upto 2:00pm. And we start to floating solar power plant.

Floating solar power plant

Students were Reached FLOATING SOLAR POWER PLANT by 03:30 Pm and took a get pass to the museum where entered to hall. Started teaching by 04:15 pm

Government Of Andhra Pradesh Irrigation Department-Spi Dronamraj Satyanarayana Reservoir

Being one of the major water sources of Visakhapatnam, Meghadrigedda supplies about 10 MGD water to the city. A Gurgaon-based private firm executed the project. The GVMC has already set up a 2 MW floating solar plant on the Mudasarlova reservoir located in the city, besides adopting the renewable energy mantra for several of its municipal schools, its main office, and other key offices in the city. Besides being environment-friendly, the floating solar project reduces the demand for land and makes use of the unutilised surface area of the reservoir.



GVMC officials says that the GVMC could save 12 acres of land by setting up the power project on the reservoir. “The project would reach its breakeven in just five years. While the annual generation of power would be 4.2 million units, it will reduce 3,220 tons of carbon dioxide emission and 54,000 tons of coal. The floats will automatically adjust to water level variations with the support of anchors.

<u>Specifications of Floating Solar Power Plant:</u>
Plant principle: heat & light combination of energy is converted into electrical energy
Plant connection: The power plant, situated in 12 acres of reservoir.
The plant generation 2 MW.
Plant output is 1.6MW
Remaining 4 to 5 KW are losses.

The solar panels are connected in series connection, The plant is directly connected in substation it is used to an increase the voltage by using step up transformer, Step voltage directly connected in grid.

We seen power generation of solar energy to electrical, by connecting of each and every panel to inverter box. By Dc source energy convert into the Ac source energy. By converting source transmits thought the cables for the safety purpose. And the cables are connected to the setup transformer it will step up the voltage 11/33 KV it will give thought the grid connected substations.

After completion of section, we thank him to sir and we take a one picture. And we walk on the floating solar block we enjoying with nature and water and we left the place around 6:00pm

3) Naval Science & Technological Laboratory (NSTL) on 09-08-2024.

Students were reached Naval Science & Technological Laboratory (NSTL) by 02:30 pm and took a get pass to the museum where entered to hall. Scientists came forward and explained and demonstrated about various processes happening in DRDO based NSTL, Vizag.

Naval Science & Technological Laboratory (NSTL), Visakhapatnam undertakes research and development of naval weapons and related systems (underwater mines, torpedoes, fire control systems, weapon launchers, targets, decoys)
Torpedoes: it is underwater missile. It is used to blast the other country ships and submarine
Decoys: It is used to change the enemy target(or) confuse the enemy target.
Mines : It is used observing any movements in under water like as moving ships and submarine.

NSTL(Naval Science & Technological Laboratory) was established on 20 August 1969 to undertake research and development of major naval systems and underwater weapons for the Indian Navy to make it self-reliant.

NSTL(Naval Science & Technological Laboratory) is involved in the design, development, testing, evaluation and productionization of underwater weapons and their associated weapon control systems. These include torpedoes, mines, decoys, targets, simulators, Fire Control Systems and weapon launchers.

NSTL (Naval Science & Technological Laboratory) also develops specialized materials for Marine Applications, including materials for mitigation of Radar, IR, Magnetic, Acoustic and ELFE Signatures leading to stealthier platforms. The Naval Science and Technological Laboratory (NSTL) is an Indian defense laboratory of the Defense Research and Development Organization (DRDO), located in Visakhapatnam. Its main function is the research and development of underwater weapons and associated systems. NSTL is organized under DRDO's Directorate of Naval R&D. The present director of NSTL is Dr. Abraham Varughese and Director General (DG) is Dr Y. Sreenivas Rao, Distinguished Scientist, Dr Ch Anil Kumar, Scientist were briefed about insights of NSTL Operations.

We seeing way of security and checking for allowing inside of staff members . The mobile phone are doesn't allowed to inside no only students, staff members security members and workers and from the gate the observation will be start on you until out of the block. And way of explaining of each and every is clear and nice. Inside of museum is cleared and neat with silence, and we didn't taken any pictures of inside. But gaining of knowledge is excellent we touching part of equipment is feeling is good. And we are talking with sir friendly for some time and we him thank him to sir and we walk out of the block. Around the time 5:30pm and taking a picture outside and we started to back.

OUTCOME OF OUR INDUSTRIAL VISIT:

1) Visiting “Vizag Steel Plant”: Understand steel production processes, from raw material handling to the final product. Learn about advanced manufacturing techniques and technologies used to improve efficiency and product quality. Observe measures taken for waste management, energy efficiency, and pollution control.

2) “Floating Solar Power Plant”: Explore the technology behind floating solar panels and how they differ from traditional solar installations. Assess the benefits, such as reduced land use and higher efficiency due to cooling effects from the water. Understand the unique challenges, including maintenance, environmental impact, and integration with the grid.

3) “NSTL-DRDO (Naval Science & Technological Laboratory-Defense Research and Development Organization)”: Gain insight into the development of advanced naval technologies, including sensors, weapons systems, and maritime defense solutions. Learn about the research processes and challenges faced in creating cutting-edge defense technologies. See how R&D translates into practical applications and innovations in national security and defense.

Summary of Participants in this 2day Industrial Visit: GIRLS = 13, BOYS= 14, FACULTY = 2
Total = 29.
Total IEEE Student Members: 06, Non IEEE Student Members: 23.
Faculty Members: 1.Dr. M.Surendar, Associate Professor, EEE Dept,
2.Mr.V.Murali, Eee Dept

We extend our sincere gratitude to the management, Chairman Sri Kondeveti Satyanarayana garu, Treasurer Sri Kondeveti Venkateswara Swamy garu, and Member Sri Addala Srihari garu, our esteemed Principal Dr. S Suresh Kumar, PES Advisor & IEEE SB Counselor Dr. V Madhu and Head of the department Mr A Satyanarayana.

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