



Government Engineering College, Valsad

Report on

Innovations in shipping industry and operation, maintenance, automation sector of Electrical engineers

A session on “**Innovations in shipping industry and operation, maintenance, automation sector of Electrical engineers**” was organized for engineering students on 02/09/2026 at Electrical Department with the objective to provide a comprehensive overview of how ships function as floating cities, relying entirely on isolated electrical power grids for propulsion, navigation, safety, and daily life. The presentation detailed the structural components of vessels—ranging from the hull, keel, and bulbous bow to the bridge and superstructure—before delving into the specialized roles of electrical engineers in modern maritime operations. Modern vessels increasingly demand higher power efficiency, automation, and eco-friendly technologies. The session highlighted several core domains for electrical engineers like Power Generation and Distribution, Electric Propulsion Systems, Automation and Control, Safety and Navigation.



Also discussed PLCs serve as the "brain and nervous system" of modern ships, allowing commercial vessels to operate safely with reduced crew sizes by transforming mechanical parts into a unified, self-regulating ecosystem. As well as Core Functions, Operational Integration, Automation Hierarchy, Industry Benefits.

The session includes Green Shipping Trends and Funding Opportunities

The maritime sector is transitioning toward environmentally sustainable practices. Future trends include "Cold Ironing," where ships plug into land-based electrical grids at docks to cut local emissions and engine noise. Additionally, electrical engineers are designing fuel cell systems for alternative fuels like hydrogen or ammonia and developing robust communication networks for remote-controlled autonomous vessels.

To support these advancements, multiple funding schemes are available:

Ministry of Ports, Shipping and Waterways Research Committee, Shipbuilding Financial Assistance, Policy (SBFAS 2.0), Sagarmala Startup Innovation Initiative (S212)

Overall, the session was highly informative and motivational. In this session 48 students and 04 faculty members participated in the session from electrical engineering department. The students actively engaged in the discussion.