

Industrial Visit Report

Name of College: - K. K. Wagh Polytechnic, Nashik

Department: - Advance Diploma in Industrial Safety

Industry Visited: - ABB India Limited, Street No 17, Plot No 79,
MIDC, Satpur 422007 Nashik Maharashtra

Date: - 20th February 2026

Faculty Accompanied: - Prof. P. M. Pathak

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1. Introduction & Objectives

The industrial visit to ABB India Ltd., Plant 1 in Nashik, was organized for engineering students to provide practical exposure to advanced manufacturing technologies and industrial management. The primary purpose was to bridge the gap between theoretical studies and practical application, specifically regarding electrical distribution and automation systems

Key Objectives:

- To understand the **manufacturing processes** of electrical products like switchgear and circuit breakers.
- To experience **real-world industrial workflows**, including production planning and quality control.
- To recognize the critical importance of **health and safety protocols** in a high-stakes manufacturing environment.
- To observe the integration of **innovation and sustainability** in modern engineering practices.

2. Company Profile

ABB India Ltd. is a subsidiary of the global ABB Group, a leader in electrification and automation technologies. The Nashik facility, located in the **Satpur MIDC**, has been operational since **1978** and is situated on a 12-acre campus. Plant 1 is specifically recognized as a hub for **medium-voltage (MV) power products** and was the first factory in the Nashik industrial estate to receive the **Platinum Green Factory Building certification** from the Indian Green Building Council (IGBC).

Operations at ABB Satpur Include:

- **Manufacturing:** Over 15 product lines, including vacuum interrupters, circuit breakers, ring main units, and compact substations.
- **Global Reach:** The plant caters to domestic needs and exports products to over **100 countries**.

- **Smart Manufacturing:** The site utilizes advanced robotics and real-time data relaying systems to enhance productivity.



Plant - II



Plant - III

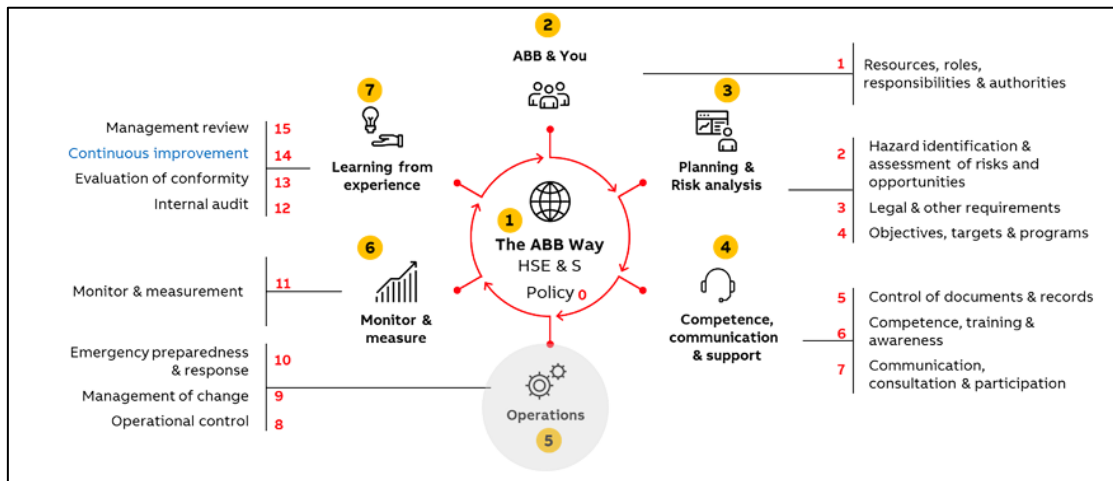
3. Safety Protocols & Practices

ABB Nashik follows a rigorous safety framework known as "**The ABB Way**," which integrates health, safety, and environmental standards into all operations.

Specific Safety Protocols:

- **Personal Protective Equipment (PPE):** Employees and visitors are required to use safety glasses, gloves, helmets, and ear protection as per the specific hazards of each manufacturing zone.
- **Industrial Standards:** The facility is certified under **ISO 45001** (Occupational Health and Safety) and **ISO 14001** (Environmental Management Systems).
- **Vehicle Alert System:** A specialized audio-visual alert system is implemented for material handling to prevent vehicle collisions on the shop floor.
- **Electrical Competency:** The plant follows the **Electrical Competency Authorization Program (ECAP)**, which defines strict levels of authorization for anyone performing electrical work.
- **5S Methodology:** The organization of workspaces follows the **5S principles** (Sort, Set in order, Shine, Standardize, Sustain) to ensure an efficient and hazard-free environment.

- **Environmental Safety:** The plant is a **Zero Liquid Discharge (ZLD)** unit and is certified as a **single-use plastic-free** facility.



4. Technical Observations

The visit provided detailed insights into the sophisticated machinery and lean manufacturing processes employed by ABB.

Manufacturing Practices:

- **CNC Machining:** Used for precise automated machining of complex components like circuit breaker housings.
- **Robotic Automation:** Advanced robots are integrated into assembly lines to assist with repetitive tasks, ensuring high precision and consistency.
- **Assembly Lines:** The plant utilizes a **modular workstation approach**, allowing for flexibility and quick adaptation to different product types.

- **Fabrication & Welding:** Techniques such as **MIG (Metal Inert Gas)** and **TIG (Tungsten Inert Gas)** welding are used for assembling durable metal structures.

Testing & Quality Control:

- **In-Process Inspection:** Quality checks are conducted at multiple stages of production.
- **Testing Stations:** Specialized stations perform rigorous functional and **electrical safety testing** on final products before shipment to ensure compliance with international standards.
- **Product Innovation:** Observations were made on **Gas-Insulated Switchgear (GIS)**, which occupies 45% less space than traditional air-insulated options and offers higher reliability.

5. Health, Safety, and Environment (HSE) Management System

ABB India operates under a comprehensive governance framework known as "**The ABB Way**," which serves as the common operating model to ensure consistent processes and continual improvement across all sites. This system is grounded in international standards, specifically **ISO 45001** for Occupational Health and Safety and **ISO 14001** for Environmental Management Systems.

A. Health and Safety Management

The primary goal of ABB's safety system is to achieve "**Zero Harm**" for all employees and contractors.

- **Incident Reporting:** The facility utilizes **Intalex**, a cloud-based software system, for the real-time reporting and management of health, safety, and security incidents.
- **Safety Observation Tours (SOTs):** At the Nashik plant, employees actively participate in Safety Observation Tours to identify risks, maintaining an average of **5.6 SOTs per employee**.
- **Hazard Resolution:** ABB demonstrates high vigilance by resolving identified hazards at a rate of **98.64%**.
- **Electrical Safety:** The plant strictly follows the **Electrical Competency Authorization Program (ECAP)**, which defines four distinct levels of competency required to perform electrical work.

- **Vehicle Safety:** To prevent shop-floor injuries, the Nashik factory has implemented a specialized **Vehicle Alert System** for material handling, which provides audio-visual alerts to workers to prevent collisions.
- **Occupational Health:** The site features an Occupational Health Center (OHC) and provides 24/7 online telemedicine services to support the physical and mental well-being of its workforce.




































B. Environmental Management

ABB's environmental stewardship is driven by its **2030 Sustainability Strategy**, focusing on carbon neutrality and resource preservation.

- **Green Factory Status:** The Nashik Plant 1 is a trailblazer, being the first in the Satpur industrial estate to receive the **Platinum-rated Green Factory Building certification** from the Indian Green Building Council (IGBC).
- **Renewable Energy (RE100):** The facility has realized its **RE100 commitment**, meeting 100% of its electricity needs through renewable sources, including an onsite solar system that provides 30% of its power.
- **Zero Liquid Discharge (ZLD):** The plant operates as a **Zero Liquid Discharge** unit, utilizing advanced Sewage Treatment Plants (STP) and Effluent Treatment Plants (ETP) to recycle treated wastewater for flushing and gardening.
- **Waste Management:** ABB has achieved **95% waste recyclability** and is certified as a **single-use plastic-free** campus by the Confederation of Indian Industry (CII).
- **Water Stewardship:** The site employs a **"6R" approach** (Rainwater recharge, Reduction, Rainwater use, Recycle, Real-time monitoring, and Recharge) and has implemented **rainwater harvesting systems** that capture up to 100% of runoff.
- **Eco-efficient Infrastructure:** The facility meets 75% of its lighting needs through natural light and utilizes **CFC-free refrigerants** in its HVAC systems to minimize environmental impact.

New employee HSE induction Program

Check list for new employees

| | | | |
|--|---|---|---|
| Surname | Staff No. | | |
| Name | Organizational unit | | |
| Purpose and scope | | | |
| The check list ensures the knowledge of safety rules and proper conduct during emergencies. It must be worked through with all employees, temporary staff, trainees etc. (those new to the company and those transferring from another company site) on the first day of work. This check list is not a replacement for an extended, department-specific introductory program. | | | |
| The following topics are discussed: | | | |
|  Conduct during emergencies as well as the emergency numbers (322, ABB mobile 44 112) are known. |  Areas that are marked as such (e.g. test stations etc.) must only be accessed by authorized staff. |  Foot protection appropriate for the activity must be worn. |  It is known that work tools |
|  The location of the health centers, closest first-aid boxes and defibrillators, as well as the responsible company emergency aides are known. |  Areas, in which food is prohibited, are known. No food may be brought to production areas (assembly, manufacturing, testing). Exceptions are made for cold drinks in sealable containers, e.g. PET bottles. Eating may only take place during the indicated pauses. |  must only be used for the intended purpose according to the operating manual |  may only be used if tested, e.g. all electric devices |
|  The procedure for how to report events (near accidents, minor accidents, work and non-work-related accidents etc.) is known. |  The prohibition to wear jewelry during all mechanical and electric work is known. |  must be visually checked by the user for damage before use |  must not be modified |
|  Contact persons were presented (e.g. the HSE representative at the site) |  Work without necessary personal protective equipment (PPE) is not allowed. Activity-specific PPE (e.g. protective goggles, footwear, hearing protection, protective clothing) is provided, and must be properly maintained and cared for. |  that are defective must be reported, and may only be repaired by qualified personnel |  with special hazards, e.g. machines, cranes, lift trucks, drablar devices etc., may only be operated by certified/instructed/trained personnel |
|  Escape routes and emergency exits in the work area and the function of panic locks, exit controllers etc. are known. |  Eye protection, e.g. personal protective goggles, optically corrected goggles etc., must be used. |  The safety-relevant courses that must be completed, e.g. crane operation, lift truck operation, STOP & CHECK Before Starting work, Team Safety, Safety Observation Tour (SOT), manual fire extinguisher operation, company emergency aides, evacuation helpers, introductory training for new employees, are known. The training plan for the necessary activity-specific qualifications was arranged. |  The MyLearning.abb.com ABB Portal is known. |
|  The gathering place and the route to it are known. |  Hearing protection, e.g. personal hearing protection or that provided via dispensers, must be used. |  The work regulations, especially "Prevention of accidents and health protection", as well as "Conduct and order", are known. |  Hazard identification and risk assessment for the activity are known. |
|  The location of emergency switches, fire extinguishers and fire hydrants is known. |  Protective gloves appropriate for the activity must be worn. Skin protection is provided to guard against skin diseases, with the following skin protection plan: Protect - Clean - Care. |  The hazard identification and risk assessment for the activity are known. |  The "Hazard under Control" brochure (Issue No. 8824) on personal responsibility and safe conduct is known. |
|  Areas, in which open flames and smoking is not allowed for safety reasons, are known. Smoking is only allowed in indicated locations. |  Respirators appropriate for the activity must be worn. |  The management system is known. |  The contents of an eventual expanded and specific introduction program are known. |
| |  Protective clothing and safety vests appropriate for the activity must be worn. |  The following specific safety provisions of the organizational units are known. | |
| |  Head protection appropriate for the activity must be worn. | | |



New employee HSE induction

2. Acting in case of an emergency

| Fire | Evacuation | First Aid |
|---|---|--|
| 1. Alarming <ul style="list-style-type: none"> Remain calm Alarm the fire department (0)118 / 112 | 1. Listen and comply <ul style="list-style-type: none"> Follow the instruction given by the alarm organization and written on the leaflets | 1. Principles <ul style="list-style-type: none"> Stop (Review the situation) Think (Recognize existing hazards) Act (Protect yourself, secure accident place) |
| 2. Rescue and warn <ul style="list-style-type: none"> Provide assistance Warn people exposed to danger Rescue disabled or injured people | 2. Leave the building <ul style="list-style-type: none"> Live the building quickly and calm Use the nearest exit Never use elevators! | 2. Rescue <ul style="list-style-type: none"> Protect yourself (gloves) Do not endanger yourself! Rescue people from hazardous zone |
| 3. Extinguishing the fire <ul style="list-style-type: none"> Use the fire extinguisher available in area Do not put yourself in danger! | 3. Helping <ul style="list-style-type: none"> Provide help for handicapped and injured people Do not put yourself in danger! | 3. Alarming <ul style="list-style-type: none"> Before alarming – check consciousness Medical help – 114 / 112 Ambulance – (0) 144 Provide information – what happened? Where happened? When happened? Which assistance has given? |
| 4. Close the oxygen supply <ul style="list-style-type: none"> Close windows and doors when leaving the building Do not stop to collect personal belongings | 4. Gathering <ul style="list-style-type: none"> Go immediately to gathering place Do not leave the gathering place unless different instructions are given | 4. Assisting <ul style="list-style-type: none"> Take care of injured person until medical help arrives Assist medical team in case of request |
| 5. Attention! <ul style="list-style-type: none"> Never use elevators during the fire | 5. Attention! <ul style="list-style-type: none"> No re-entering to the dangerous area | |



New employee HSE induction

3. Emergency



- Emergency exit stairway
- Emergency exit from main corridors (into section between office tracts)
- Location of fire extinguisher
- Emergency switch

Going back to your working place, please identify the nearest emergency exit, - fire extinguisher and emergency switch!



Hazard reporting in Intellex

Act vs Condition



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New employee HSE induction

The ABB Way Management System

What it is

The ABB Way is the framework of HSE/SA policies, processes and procedures used by ABB to ensure that you can fulfill all the tasks required to achieve your objectives.

The ABB Way supports your work by providing templates and guidelines.

The ABB Way is compliant with ISO 14001, OHSAS 18001 (ISO 45001) and ISO 50001.

What it is not

The ABB Way does not relieve you from work. A management system must be maintained on all organizational levels.

The ABB Way does not prevent incidents just by implementation. However, it tells you how to avoid incidents and how to improve your organizational sustainability.

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6. ABB Life Saving Rules

While a numbered list of "Rules" is not explicitly provided in the excerpts, the core safety mandates include:

- **"Don't Look the Other Way" Culture:** A fundamental principle that requires all employees to report unsafe behaviors and conditions.
- **Electrical Safety:** Strict adherence to the **Electrical Competency Authorization Program (ECAP)**.
- **PPE Compliance:** Mandatory use of Personal Protective Equipment such as **safety glasses, gloves, helmets, and ear protection** tailored to specific job risks.

8. Behavior-Based Safety (BBS)

The company's BBS approach is manifested through employee participation in **Safety Observation Tours (SOTs)** and the reporting of unsafe acts. By empowering the workforce to "be the cause for change" and speak up against wrongdoing, ABB reinforces a culture of safety-first behavior at all levels.

9. Emergency Preparedness

- **Crisis Management:** ABB has a dedicated security and crisis management system to analyse threats and vulnerabilities to assets and personnel.
- **On-Site Observations:** The Nashik facility is equipped with **emergency exits** and conducts regular **safety drills** to ensure personnel are prepared for evacuation or critical incidents.

10. Environment Initiatives

The Nashik plant is a leader in environmental stewardship under ABB's **2030 Sustainability Strategy**.

- **Platinum Green Factory:** Nashik Plant 1 was the first in its industrial estate to receive the **Platinum-rated Green Factory Building certification** from the IGBC.
- **RE100 Commitment:** The facility meets **100% of its electricity needs through renewable sources** (30% onsite solar, 70% certified renewable sources).
- **Zero Liquid Discharge (ZLD):** The plant has high-efficiency Sewage (STP) and Effluent (ETP) treatment plants that recycle 100% of treated wastewater for gardening and flushing.
- **Waste Management:** The site is certified as a **Single-Use Plastic (SUP) free** facility and has achieved **95% waste recyclability**.

11. First Aid Kit

The facility maintains **Occupational Health Centers (OHCs)** staffed by occupational health professionals. While specific "kit contents" are not listed, the centers are regularly upgraded and serve as the primary point for immediate medical attention and health monitoring for both employees and on-site workers.

12. Conclusion

The industrial visit to ABB Nashik Plant 1 demonstrated a masterclass in **modern engineering excellence** balanced with **sustainability and safety**. The integration of advanced robotics, lean manufacturing, and the "Platinum" green building standards serves as a benchmark for engineering students. ABB's strong organizational culture—centered on ethics, employee welfare, and "Zero Harm"—proves that industrial productivity can be achieved alongside deep social and environmental responsibility.

13. Industrial Visit to ABB – Group Photo

