

Department of Electrical and Electronics Engineering

*A brief report of Industrial
Visit*

*Zeonics Systech Defence & Aerospace Engineers Pvt. Ltd. New
Thippasandra P.O, Bangalore – 560075*

DATE: 16.12.2024

The Department of Electrical and Electronics Engineering (EEE) at New Horizon College of Engineering organized an industrial visit for 7th-semester EEE students to Zeonics Systech Defence & Aerospace Engineers Pvt. Ltd., New Thippasandra P.O, Bangalore - 560075. A total of 30 students attended the visit.

Zeonics Systech Defence & Aerospace, is a leading organization specializing in the design, development, and manufacturing of advanced defense and aerospace systems. The company is known for its innovations in electronic warfare, radar systems, and high-precision components for strategic applications. With state-of-the-art facilities and a focus on indigenous technology, Zeonics Systech plays a significant role in strengthening India's defense and aerospace sectors.

Dr Zarir Sholapurwala a legendary Nuclear Scientist who worked with various famous personalities and has a plethora of knowledge was kind enough to guide us through the industry.



NEW HORIZON
COLLEGE OF ENGINEERING

Department of Electrical and Electronics Engineering

Industrial Visit

- 📅 16 December, 2024
- 🕒 10:00 AM to 5:00 PM
- 👥 7th Semester, Section B
- 📍 Zeonics Systech Defence & Aerospace Engineers Pvt. Ltd.
New Thippasandra P.O,
Bangalore - 560075



Faculty Coordinators

Prof. Kavitha C R
Senior Assistant Professor - EEE

Dr. B. Gunapriya
Associate Professor - EEE

Convenor

Dr. Sakthivel Aruchamy
HoD - EEE

1. Industry Overview

- Dr Zarir Sholapurwala showed us various electrical devices and its working form Pulse generators to EMP's

2. Plant Overview



- Maintained by Dr Zarir Sholapurwala
- Estimated cost: ₹107 crores

3. High Voltage capacitors

- Dielectric Strength: High-voltage capacitors use materials with high dielectric breakdown strength, such as ceramic, polypropylene, or mica, to prevent dielectric failure under extreme electric fields.
- Voltage Rating: These capacitors are rated to handle voltages typically ranging from 1 kV to over 100 kV, ensuring stable operation without arcing or insulation breakdown
- Capacitance: Values range from picofarads (pF) to microfarads (μ F), with precise tolerances to suit specific applications like pulse power systems or energy storage.

4. Pulse Capacitors

- High Discharge Capability: Pulse capacitors are designed to deliver rapid energy discharge with high peak currents, essential for pulsed power applications like lasers and radar systems.
- Low ESR (Equivalent Series Resistance): These capacitors feature minimal ESR to reduce energy losses and support efficient energy transfer during rapid charge and discharge cycles.
- Dielectric Material: Commonly use polypropylene, ceramic, or mica dielectrics, chosen for their ability to handle high electric fields and provide fast response times.

5. High Voltage Probes

- Voltage Measurement Range: High voltage probes are designed to safely measure voltages typically ranging from a few kilovolts to hundreds of kilovolts, with high accuracy and minimal loading on the circuit
- Attenuation Factor: These probes often include an attenuation circuit (e.g., 1000:1 or 100:1) to reduce the measured signal's amplitude, allowing safe measurement of high-voltage signals on oscilloscopes or multimeters.
- Insulation and Safety: Equipped with high dielectric strength insulation, these probes protect the user from electrical shock while measuring high-voltage systems. Materials like silicone rubber or PTFE are often used for enhanced safety.

6. Isolation Transformer

- **Electrical Isolation:** Isolation transformers provide galvanic isolation between the primary and secondary windings, preventing direct electrical connection and protecting equipment from power surges, faults, and ground loops.
- **Voltage Conversion:** They are used to step up or step down AC voltage levels, maintaining the same frequency but allowing for safe voltage conversion without a physical connection between the input and output.
- **Safety:** These transformers enhance safety by isolating sensitive equipment or circuits from high-voltage power sources, protecting against electrical shocks, surges, and faults.