# Ritik Jain

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## Professional Summary

Transformer Design and R&D Engineer with industry experience in mechanical design validation, simulation, testing, and manufacturability analysis of power and distribution transformers at CG Power & Industrial Solutions. Skilled in CAD modelling, FEA, structural reliability analysis, and engineering testing aligned with IEC-based validation practices. Demonstrated engineering impact through 35% simulation convergence improvement and production scale expansion from 40,000 MVA to 65,000 MVA. Strong technical foundation in transformer construction, core–coil assemblies, insulation systems, mechanical withstand design, and performance optimization for global OEM manufacturing environments.

## Core Technical Competencies

Transformer Mechanical Design — Core–Coil Assembly — Structural Integrity Analysis — Thermal Behaviour — FEA Validation — Design Verification — Mechanical Withstand Evaluation — Manufacturing Interface — DFM — Multi-Physics Simulation — Root Cause Analysis — Reliability Engineering — Engineering Documentation

## Technical Skills

**Transformer Engineering:**
Mechanical Design Validation, Tank Stress Analysis, Clamping Structure Evaluation, Core Assembly Layouts, Insulation Clearance Concepts, Short-Circuit Force Awareness, Flux Density Fundamentals, Loss Mechanism Knowledge, Impedance Concepts, Thermal Behaviour Understanding, IEC Standards Familiarity

**Simulation & Engineering Analysis:**
ANSYS, Finite Element Analysis (FEA), Structural Analysis, Thermal Simulation, Seismic Simulation, Multi-Physics Validation

**Design Tools:**
Siemens NX, AutoCAD, SolidWorks, 3D Assembly Modeling, Engineering Drawings

**Testing & Validation:**
Pressure Tests, Vacuum Tests, Lifting Tests, Jacking Tests, Mechanical Load Validation

**Manufacturing Engineering:**
Lean Manufacturing, 3P Methodology, Six Sigma, Design for Manufacturability (DFM), Value Stream Mapping

**Analytical Methods:**
Root Cause Analysis, Optimization Models, Fishbone, AHP

## Professional Experience

**CG Power & Industrial Solutions Pvt. Ltd.** Jul 2025 – Present
*R&D Executive*

- Selected for full-time engineering role following internship based on demonstrated technical performance and validation accuracy
- Performed structural and thermal validation of transformer assemblies using ANSYS to verify mechanical reliability under operational loading conditions
- Executed multi-physics simulations including structural, thermal, pressure, vacuum, and seismic analysis supporting design validation and engineering compliance
- Evaluated transformer mechanical design focusing on structural strength, manufacturability, insulation clearances, and reliability improvement
- Generated detailed engineering documentation supporting validation testing, design approval, and product release processes
- Redesigned manufacturing layout using Lean and 3P methodology increasing production capacity from 40,000 MVA to 65,000 MVA
- Analyzed production constraints, SOP dependencies, and process interrelationships to improve engineering efficiency and cost-performance balance

*R&D Analyst Intern* Jan 2025 – Jun 2025

- Optimized transformer CAD geometry in Siemens NX improving simulation convergence accuracy by 35%
- Conducted pressure, vacuum, lifting, and jacking tests validating mechanical robustness and structural safety
- Prepared core–coil assemblies and 2D manufacturing layouts improving design precision and fabrication readiness
- Applied Lean and Kaizen methodologies eliminating non-value-added activities and improving design-to-production integration

## Key Engineering Projects

**ISRO Automated Rainwater Sampling System — R&D Lead**

- Designed mechanical architecture of automated sampling system using engineering analysis and validation methodology
- Conducted performance testing and iterative optimization improving reliability and operational stability
- Led cross-functional engineering team of 11 ensuring compliance with technical performance specifications
- Reduced assembly time by 20% and material waste by 15% through engineering design optimization

**Food Corporation of India Optimization Study**

- Designed hub-and-spoke distribution model reducing transportation lead time by 15% and operational cost by 10%
- Improved warehouse efficiency by 20% through facility layout optimization and analytical decision modelling
- Increased logistics efficiency by 25% through routing and distribution strategy optimization

## Education

**M.Tech — Industrial Engineering & Management** 2025
Maulana Azad National Institute of Technology CGPA: 8.57

**B.Tech — Mechanical Engineering** 2022
Government Indira Gandhi Engineering College CGPA: 8.10

**Diploma — Mechanical Engineering** 2019
Government Polytechnic College, Khurai 83.6%

## Certifications

CII Certified Professional in Life Cycle Assessment (LCA) — 2026
Lean Manufacturing Certification
Six Sigma Certification
Product Lifecycle Management Certification
Supply Chain Management Certification

## Leadership & Industrial Exposure

Training & Placement Coordinator — NIT Bhopal
Training & Placement Head — IGEC Sagar
Industrial Training — Bharat Heavy Electricals Limited (BHEL): Exposure to large-scale transformer manufacturing, workflow optimization, process improvement, and industrial quality systems