

DESIRE 2 DESIGN ENGINEERS

Guest Lecture Report

Science Behind the Structural Failures: From Theory to Construction Practice

A one-day workshop on structural distress, diagnosis and remedial engineering for the Department of Civil Engineering

RESOURCE PERSON	Er. S. Soma Sekhar Naidu — Founder & Managing Director, D2D Engineers
DATE	05-08-2026
TIME	10:00 AM – 12:00 Noon
VENUE	Seminar Hall, Department of Civil Engineering, Welfare Institute of Science, Technology & Management (WISTM), Visakhapatnam
ORGANIZED BY	Department of Civil Engineering, WISTM
CONVENER	Dr. B. V. Siva Kumar, Professor & HoD, Civil Engineering
FORMAT	Lecture + Case Studies + Interactive Q&A
PARTICIPANTS	100+ II & III Year Civil Engineering students and faculty members

ABOUT THE RESOURCE PERSON

Er. S. Soma Sekhar Naidu, M.E., AMIE, AIV (Chartered Engineer), is the Founder & Managing Director of Desire 2 Design (D2D) Engineers — a structural consultancy and turnkey construction firm offering services spanning structural design, NDT & soil testing, DGPS survey, seismic retrofitting and plan approvals. Having earlier worked as an Assistant Professor, he brings both an academic and a site-tested engineering perspective to the classroom, and visited WISTM to share hard-won lessons on why structures fail and how engineers diagnose, repair and prevent distress — delivered in his present capacity as Founder & Managing Director, D2D Engineers.

15+ Years Experience	1000+ Projects Completed	50+ Skilled Team	₹250 Cr Largest Project
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OBJECTIVES OF THE SESSION

- Understand why well-designed, code-compliant structures still develop distress over time.
- Recognise the spectrum of structural failure — cracking, settlement, corrosion, spalling and seepage.
- Learn the systematic investigation procedure: visual inspection, crack mapping, site survey and testing.
- Build familiarity with Non-Destructive Testing (NDT) methods used to assess structures without damage.
- Understand remedial techniques and the modern technologies reshaping structural health monitoring.

TOPICS COVERED

- **Structural Failure as a Spectrum** — as a warning sign spanning cracking, settlement, corrosion, spalling and seepage.
- **Life Cycle of a Structure** — planning, design, construction, service & maintenance, and how failure can originate at any stage.
- **Root Causes of Distress** — poor planning, inadequate soil investigation, improper construction, material quality issues, environmental effects and lack of maintenance.
- **Concrete & Reinforcement on Site** — water-cement ratio, compaction, curing, and how corrosion silently reduces load-carrying capacity.
- **Investigation Procedure & NDT** — visual inspection, crack mapping, Rebound Hammer, Ultrasonic Pulse Velocity, Half-Cell Potential and GPR testing.

- **Remedial Measures & Modern Technology** — crack injection, jacketing, corrosion control, BIM, IoT monitoring and sustainable construction practice.

INTERACTIVE LEARNING & DEMONSTRATION

Rather than staying at an advanced, theoretical level, Er. Naidu deliberately walked students back to the basics — reinforcing core concepts of structural behaviour through live, on-the-spot demonstration instead of slides alone. Moving through the aisles with the microphone, he questioned students directly, used everyday examples to rebuild fundamentals, and encouraged them to reason out loud — making the session participative rather than a one-way lecture.



Live demonstration reinforcing fundamentals with students



Teaching basics through direct, live interaction



Reinforcing core concepts with hands-on explanation

CAREER GUIDANCE FOR FUTURE ENGINEERS

- **Start on Site** — a graduate trainee role builds the practical discipline no classroom can teach.
- **Teach to Sharpen Skill** — explaining concepts to others deepens your own understanding.
- **Seek Large Exposure** — work on big, complex projects early to build real judgement.
- **Build Technical Credibility** — deep expertise earns trust and opens new opportunities.
- **Keep Learning Widely** — structural, soil, NDT and PMC skills together make you versatile.
- **Take the Entrepreneurial Leap** — when ready, starting your own practice is a natural next step.

GLIMPSES OF THE EVENT



Addressing the students



Explaining structural distress patterns with real site case studies



Open interaction and Q&A with students

OUTCOME & CONCLUSION

The session gave WISTM students a rare, diagnostic view of structural engineering — moving beyond design formulae to how real structures behave, fail and get repaired. Live site photographs, NDT procedures and root-cause case studies helped connect Strength of Materials and Structural Analysis fundamentals to the judgement required on an actual site, leaving students better equipped to recognise early warning signs in their future careers.



Students following the session



Discussion with HOD

FELICITATION

Er. S. Soma Sekhar Naidu was felicitated by Dr. B. V. Siva Kumar, HoD, and the faculty of the Department of Civil Engineering, WISTM, in recognition of his time, insight and continued support to the department.



Felicitation to Er. S. Soma Sekhar Naidu by HoD Dr. B. V. Siva Kumar and faculty members



Felicitation to Dr. B. V. Siva Kumar, HoD, by Er. S. Soma Sekhar Naidu, Founder & MD, D2D Engineers

In turn, Er. S. Soma Sekhar Naidu, Founder & Managing Director, D2D Engineers, felicitated Dr. B. V. Siva Kumar, HoD, Department of Civil Engineering, as a token of appreciation for hosting the workshop.

GROUP PHOTO



Faculty and student coordinators with Er. S. Soma Sekhar Naidu



Participating students with Er. S. Soma Sekhar Naidu

"Great engineers are not only those who design structures, but those who understand how structures behave throughout their service life."

— Er. S. Soma Sekhar Naidu, Founder & Managing Director, D2D Engineers

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