

5th INDUSTRY EXPERT LECTURE
DEPARTMENT OF BIOTECHNOLOGY, NIT RAIPUR

Expert: Dr. Meenakshi Singh, CEO and Founder of Sustaina Greens LLP, Vadodara, Gujrat

Topic: *Industrial Strategy, Sustainable Future Through Green Energy Career and Tool*

Date: 19th September 2025

Mode: Online

The highlights of the session are -

1. Emerging Green Energy Landscape in India
 - India's bioeconomy projected to reach US \$300 billion by 2030, with growing opportunities in bioenergy, biofuels, and green hydrogen.
 - National Green Hydrogen Mission and Renewable Energy expansion opening new R&D, policy, and industrial roles.
2. Career Pathways for Biotech Students
 - R&D in biofuels, enzymes, and microbial hydrogen production.
 - Carbon Analyst & MRV Specialist roles in GHG accounting, LCA, and sustainability consulting.
 - Opportunities in startups and corporates across renewables, waste-to-energy, and nature-based solutions.
3. Tools & Transition Skills
 - Practical skills required: Life Cycle Assessment (OpenLCA, SimaPro), GHG Protocol, GIS for NbS monitoring, Python for data analytics.
 - Certifications in sustainability frameworks and hands-on projects add strong portfolio value.
4. Case Studies Highlighted
 - Carbon Footprinting: Manufacturing unit footprint analysis revealed energy and logistics hotspots.
 - Bioenergy Projects: LCA comparisons of waste-to-energy vs energy crops.
 - Green Hydrogen: Techno-economic and CO₂ intensity comparisons of electrolysis vs blue hydrogen.
 - Nature-Based Solutions: Mangrove restoration as a dual carbon + resilience strategy.
5. Takeaways
 - Biotech skills are highly transferable to the green energy sector.
 - Building a portfolio with sustainability projects is critical.
 - Policy & industrial strategies are shaping demand, making biotech students central to India's green transition.

