

Innovative Teaching and Learning Practices

The Department of Computer Science and Engineering transitions from traditional lectures to student-centric, technology-driven methodologies designed to cultivate critical thinking and real-world engineering competence.

1. Outcome-Based Education (OBE) & Regulation 2025

Our academic framework is built on the pillars of Outcome-Based Education, directly mapping course outcomes to core engineering competencies. Under the updated **Regulation 2025 curriculum**, core theoretical foundations are explicitly integrated with modern market requirements, bridging the gap between classroom theory and advanced industrial application.

2. "Beyond the Syllabus" Curriculum Enhancement

To maintain student competitive advantages, faculty integrate designated **Value-Added Topics** during course plan preparation. Introducing breakthrough trends and modern algorithmic paradigms outside the standard university syllabus enhances classroom engagement and promotes proactive peer interaction.

3. Experiential Learning via Centres of Excellence

Learning transcends standard classrooms through active engagement at our advanced research hubs. At the **Centre of Excellence in Intelligent Systems (CoE IS)**—developed in partnership with the Mechanical Engineering Department—students receive hands-on training using industrial-grade loadouts, including HikRobot 12MP GigE cameras, vision controllers, and full MATLAB integration. Over 100 students annually transition into active developers by executing real-world automation and Machine Vision consultancies.

4. Active Project-Based & Hackathon Pedagogy

We champion a learn-by-doing culture. Students are continually assessed through project-oriented execution and prototype creation. By tackling complex engineering problems under strict production deadlines, our students regularly build functional technology—earning top laurels at premier national platforms like the *Smart India Hackathon (SIH)*, *IIT Bombay's NEC Challenge*, and the *ImmersiveX26 Hackathon*.

5. Multi-Platform E-Learning & Global Certifications

We seamlessly blend classroom instruction with elite global digital learning pathways to maximize industry readiness:

- **Global Tech Academies:** Hands-on professional routing through the **CISCO Networking Academy**.
- **National Knowledge Initiatives:** Academic e-learning via **IIT-initiated Spoken Tutorials** and comprehensive **NPTEL online courses**.
- **Corporate Immersive Frameworks:** Direct alignment with industry upskilling modules like the **Infosys Springboard Virtual Internships**.

6. ICT-Enabled Smart Classrooms

Modern digital infrastructure underpins our daily pedagogy. Our undergraduate and postgraduate smart learning spaces are fully equipped with BenQ digital projection systems, audio reinforcement setups, and high-performance computing nodes. This enables faculty to seamlessly integrate rich multimedia, live architectural simulations, and interactive coding demonstrations into every lecture.