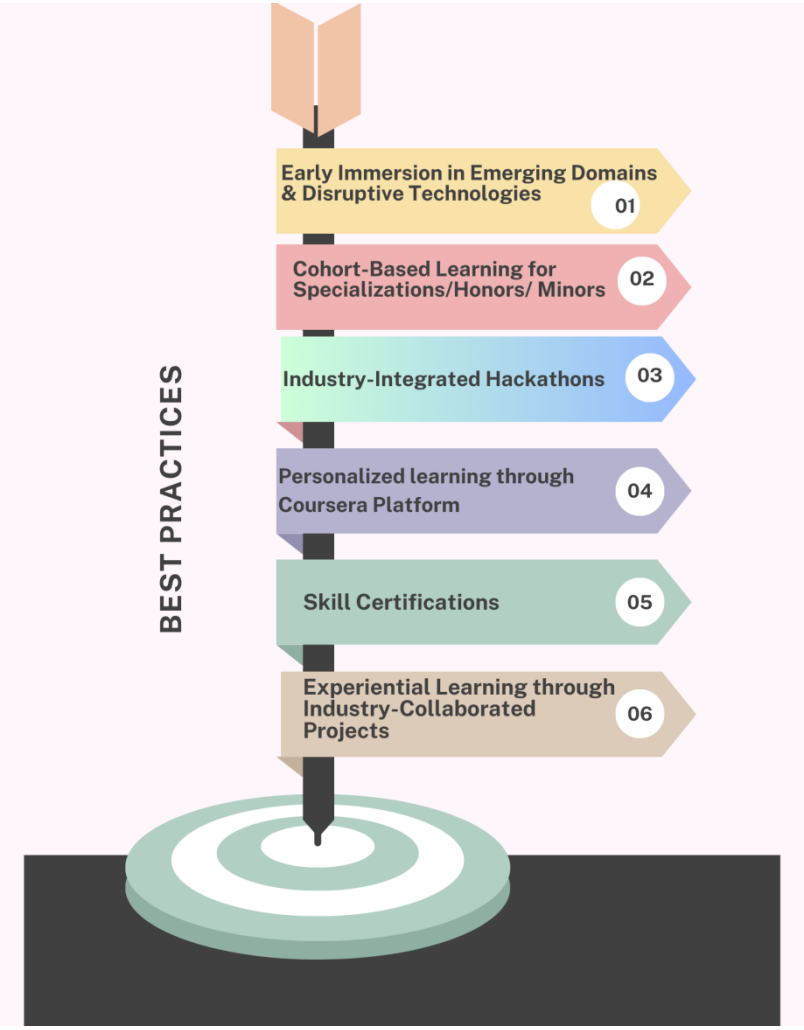
DEPARTMENT OF INFORMATION TECHNOLOGY

Best Practices - Pioneering Innovation in Education

The **Department of Information Technology (IT)** fosters a strong connection between academia and industry by incorporating emerging technologies, industry partnerships, and experiential learning into its curriculum. Through cohort-based learning, industry-driven hackathons, skill certifications, and hands-on projects, it equips students with practical problem-solving skills, interdisciplinary expertise, and valuable industry exposure. This comprehensive approach cultivates tech-savvy innovators, entrepreneurs, and future industry leaders, propelling technological advancements across various fields.



Course on Emerging Domains: Harnessing Disruptive Technologies for Industry Transformation

The Emerging Domains course, a pioneering multi-domain, technology-integrated initiative introduced in the first year of the Information Technology (IT) curriculum, is a transformative leap towards cultivating future-ready professionals. Designed to immerse students in cutting-edge technologies, industry-driven applications, and interdisciplinary innovations, this strategic innovation redefines early engineering education—fostering a dynamic, experiential, and industry-synchronized learning ecosystem from day one.

Benefits

- Early Exposure to Industry Trends & Emerging Technologies
- Digital Learning Ecosystem: LMS, LCMS, MOOCs, and LLMs for Education
- AI-Powered Disruptions Across Industries
- Agriculture & Sustainability: Bridging Tech and Real-World Challenges
- Gaming & Virtual Reality: Expanding Creative Computing
- NLP for Regional AI Development

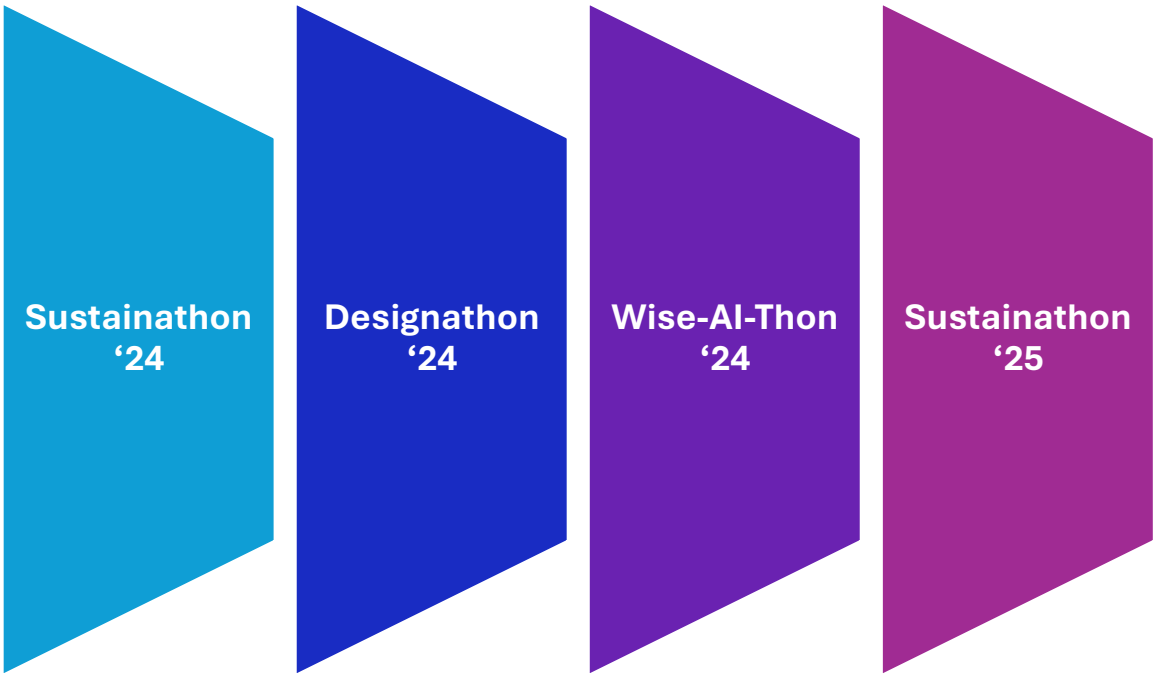
Innovative Aspects of Cohort-Based Learning for Specializations, Honors, and Minors

1. **Cohort-Based Electives**
    - Introduce **modular electives** where students can customize learning pathways within their cohort, choosing skill-focused micro-courses aligned with industry needs.
2. **Enhanced Thematic Cohorts for Capstone Projects**
    - Establish **industry-integrated thematic cohorts** where mentors from organizations co-develop problem statements and provide structured feedback loops.
    - Incorporate **cross-disciplinary projects** allowing students from AI, Cyber security, and Data Science to collaborate on interconnected challenges.

Hackathons with Industry

The Department of Information Technology actively collaborates with industry leaders, startups, and research organizations to organize thematic hackathons that address real-world challenges while aligning with the United Nations' Sustainable Development Goals (SDGs). These hackathons serve as a dynamic platform for students to engage in hands-on problem-solving, leveraging emerging technologies such as artificial intelligence, blockchain, IoT, and cloud computing. By working on industry-relevant case studies, students gain first-hand exposure to best practices, agile development methodologies, and interdisciplinary collaboration. This initiative not only fosters technical excellence and innovation but also cultivates critical thinking, teamwork, and entrepreneurial mindsets, empowering students to contribute meaningfully to sustainable and technological advancements in various domains.

Notable hackathons conducted include:



Industry-based collaborations, such as **Hyperverge and Wiseworks**, play a key role in these hackathons, offering them as platforms to identify and recruit talented students for **internship and career opportunities**.

Benefits of Industry-Integrated Hackathons

- **Hands-on Learning:** Practical exposure to real-world industry challenges.
- **Internship & Career Opportunities:** Direct recruitment platforms for students by industry partners.
- **Innovation & Problem-Solving:** Encourages creative solutions aligned with SDGs.
- **Networking with Experts:** Connects students with industry leaders and professionals.
- **Skill Development:** Enhances technical, teamwork, and entrepreneurial skills.

Through these engagements, students gain valuable industry insights, develop impactful solutions, and contribute to sustainable technological advancements.

Personalized learning through Customized Learning Modules via Coursera Platform

Integrating **Customized Learning Modules** through the **Coursera platform**, curated by our faculty with the assistance of **Generative AI**, enables students to tailor their educational experiences to align with specific learning outcomes and career goals. This approach is particularly beneficial for capstone projects, engineering sprints, and elective courses, offering a personalized and outcome-focused learning pathway.

Key Features:

- **AI-Assisted Faculty Curation:** Our faculty leverage Generative AI tools to design and organize course content that aligns with desired learning outcomes, ensuring relevance and rigor in the curriculum.
- **Personalized Learning Paths:** Students can select from a vast array of courses and specializations available on Coursera, allowing them to focus on areas that align with their academic and professional aspirations.
- **Global Expertise Integration:** By accessing content delivered by international experts and institutions, students gain a global perspective and exposure to diverse methodologies and practices. Coursera collaborates with over 350 leading universities and industry partners, providing world-class learning content.
- **Enhanced Capstone and Project-Based Learning:** Coursera offers numerous capstone projects that enable students to apply theoretical knowledge to practical, real-world challenges, thereby enhancing their problem-solving skills and industry readiness.

Benefits:

- **International Exposure:** Access to insights and teachings from global experts broadens students' horizons and prepares them for the international job market.
- **Flexibility and Relevance:** Customized modules allow students to focus on areas that are most pertinent to their career objectives, increasing the relevance and impact of their education.
- **Collaborative Opportunities:** Engagement with international content fosters collaboration with peers and professionals worldwide, enriching the learning experience and building a global professional network.

Skill Certifications with Academia-Industry Partnerships

- The department **actively collaborates with industry leaders, global tech giants**, and certification bodies to **offer industry-recognized certification programs** that enhance students' technical expertise and professional competencies.
- These certification **programs cover emerging and high-demand technologies** such as **artificial intelligence, machine learning, cybersecurity, cloud computing, blockchain, data science, and software development**, ensuring that students gain hands-on experience with industry-relevant tools and frameworks.
- By integrating these certifications into the academic curriculum, the department provides students with **practical exposure to real-world applications**, bridging the gap between theoretical learning and industry expectations.
- These credentials not only validate students' technical proficiency but also **enhance their employability**, making them highly competitive in the **global job market**. Additionally, industry-certified students gain a competitive edge in career opportunities, including internships, placements, and entrepreneurial ventures, positioning them as future-ready professionals equipped to drive innovation in the evolving tech landscape.

Key Certification Programs Offered:

- **Unity Certified Associate** (Game Development & AR/VR)
- **AWS Certifications** (Cloud Computing & Infrastructure)

Benefits:

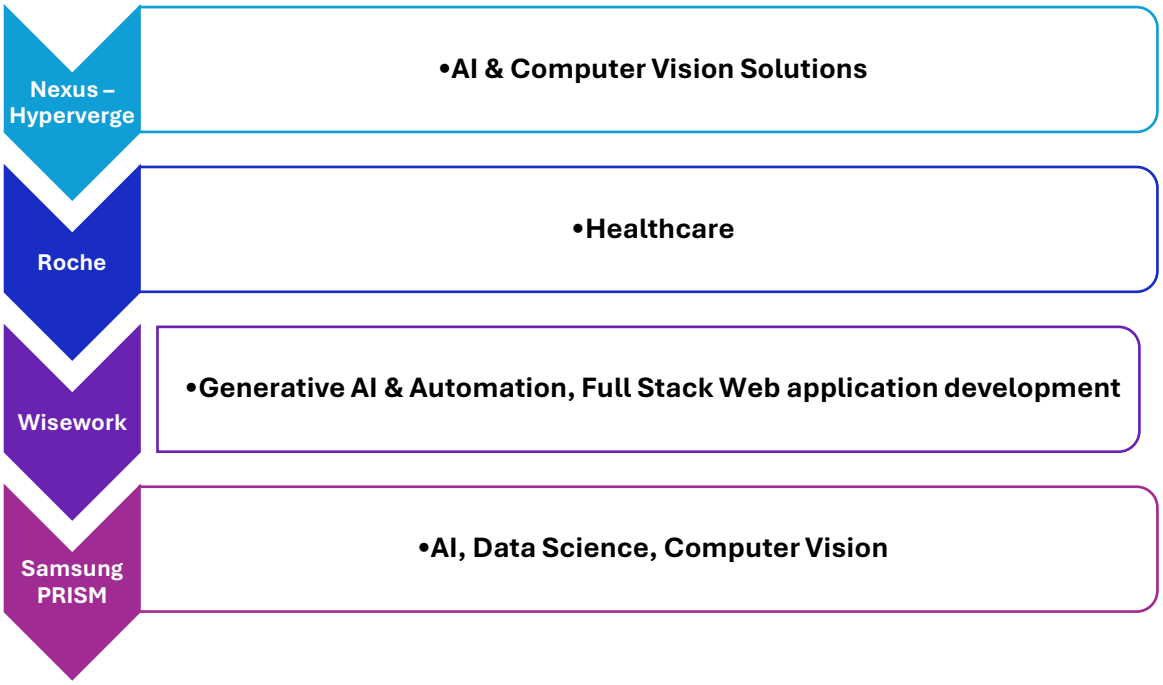
- **Hands-on Experience:** Gain practical skills in industry-standard tools and platforms.
- **Global Recognition:** Certifications validate expertise and improve career prospects.
- **Higher Employability:** Enhance job readiness in high-demand technical fields.
- **Skill Advancement:** Stay ahead in evolving domains like cloud computing, virtual reality and game development.

Experiential Learning through Industry-Collaborated Project

- The Department of Information Technology promotes experiential learning by actively involving students in industry-collaborated projects, ensuring they gain hands-on exposure to real-world problem-solving. Through strategic partnerships with leading companies, startups, and research organizations, students engage in projects that reflect current industry demands, enabling them to work with cutting-edge technologies such as artificial intelligence, cybersecurity, blockchain, IoT, and cloud computing.

- These collaborations serve as a bridge between academia and industry, allowing students to apply their theoretical knowledge in practical scenarios while developing critical thinking, teamwork, and project management skills. By tackling complex, real-world challenges, students enhance their technical expertise, adaptability, and innovation mindset, making them industry-ready professionals capable of addressing emerging technological and societal needs.

Key Industry Collaborations for Industry Collaborated projects



- By incorporating innovative learning methodologies, industry collaborations, and hands-on experience, the department is redefining engineering education.
- The emphasis on emerging domains, certification programs, hackathons, and industry-integrated projects ensures students are not just academically strong but also innovation-driven and industry-ready.
- This transformative approach prepares students for high-impact careers, entrepreneurial ventures, and leadership roles in the fast-evolving tech landscape.