



# INSTITUTE OF INFRASTRUCTURE, TECHNOLOGY, RESEARCH AND MANAGEMENT

(An Autonomous University established by Government of Gujarat)

Department of Electrical and Computer Science Engineering  
Discipline of Computer Science

**Our Industry  
Partners**



**InSolare**  
Solar Power Unleashed

**Netweb**  
TECHNOLOGIES

## Proposed Titles of STTPs for Engineers, Students and Academicians

Topics	Major-topics to be covered during training
Foundations of Cyber security	<ul style="list-style-type: none"> <li>Cyber security landscape &amp; threat taxonomy</li> <li>Security triad (CIA) and fundamental principles</li> <li>Network security basics: firewalls, IDS/IPS</li> <li>Cryptographic foundations: hashing, symmetric/asymmetric cryptography</li> <li>Secure communication protocols (TLS, VPNs)</li> </ul>
Cyber Threats, Vulnerabilities & Risk Assessment	<ul style="list-style-type: none"> <li>Malware types, attack vectors, APTs</li> <li>Vulnerability assessment workflow</li> <li>Threat modelling (STRIDE, DREAD)</li> <li>Risk analysis frameworks (NIST, ISO 27005)</li> <li>Financial fraud and awareness</li> <li>Hands-on: Vulnerability scanning using Nessus/OpenVAS,</li> <li>Creating threat models for sample infrastructures</li> </ul>
Cloud and Application Security	<ul style="list-style-type: none"> <li>Cloud security architectures (AWS/Azure/GCP)</li> <li>Secure SDLC and DevSecOps basics</li> <li>API security &amp; OWASP Top 10</li> <li>Hands-on: Securing a sample web application, Implementing CI/CD pipeline security checks</li> </ul>
Incident Response & Digital Forensics	<ul style="list-style-type: none"> <li>IR lifecycle</li> <li>Log analysis &amp; SIEM introduction</li> <li>Forensics: disk, memory, network capture</li> <li>Hands-on: Responding to a simulated breach, using tools like Autopsy, Wireshark, Splunk (demo)</li> </ul>
Cybersecurity for Critical Infrastructure	<ul style="list-style-type: none"> <li>ICS/SCADA vulnerabilities</li> <li>OT vs IT security</li> <li>Standards: IEC 62443, NIST ICS</li> <li>Use case: Urban infrastructure, utilities, transport networks.</li> <li>Useful for AMC, L&amp;T.</li> </ul>
Foundations of AI & Machine Learning	<ul style="list-style-type: none"> <li>Artificial Intelligence vs Machine Learning vs Deep Learning</li> <li>Types of ML: supervised, unsupervised, reinforcement</li> <li>Data preprocessing, feature engineering</li> <li>Hands-on: Training models using Python, scikit-learn</li> </ul>
Deep Learning	<ul style="list-style-type: none"> <li>Neural networks, CNNs, RNNs, LSTMs, Transformers</li> <li>Model optimization, regularization, evaluation</li> <li>Hands-on: Building CNNs for image recognition, Simple NLP model using transformers</li> </ul>
AI for Engineering Applications	<ul style="list-style-type: none"> <li>Predictive maintenance</li> <li>Anomaly detection in sensor networks</li> <li>AI for traffic forecasting, energy optimization</li> <li>Use Case: Training for govt/urban infrastructure agencies such as AMC</li> </ul>

**\*We tailor-make training programs to match your requirements**

Topics	Major-topics to be covered during training
MLOps & Responsible AI	Model deployment, monitoring, pipelines Ethical AI: fairness, transparency, accountability Data privacy considerations Hands-on: Deploying models using Docker/Flask, Monitoring drift using sample datasets
Geospatial Data Analytics & AI Integration	Multispectral & hyperspectral imagery Image correction, classification (supervised/unsupervised) Spatial statistics Deep learning for geospatial data (CNNs on imagery) Geospatial data fusion (GIS + IoT + AI) Hands-on: Object detection on satellite images, Using Python geospatial libraries
Internet of Things	The Anatomy of IoT Microcontrollers vs. Microprocessors Sensors & Actuators Connectivity & Protocols AWS IoT Core, Google Cloud IoT, and Azure IoT Hub Security in IoT Capstone Project
<b>Achievements :</b> Trained 350+ students, staff and Faculty from various institutes from Gujarat, in Cybersecurity as part of Cyberwise workshops series sponsored by CAWACH Kendra, GoG.	