PRIVACY AND SECURITY IN IOT SYLLABUS

Module 1: Security in IoT

- IoT Security
  - Vulnerabilities
  - Attacks
  - Countermeasures
- Security Engineering for IoT Development
- IoT Security Lifecycle

Module 2: Network Robustness and Malware Propagation Control in IoT

- Network Robustness
  - Fusion-Based Defense Scheme
  - Sequential Defense Scheme
  - Location Certificate-Based Scheme
  - Sybil Node Detection Scheme
- Formal Modeling and Verification
  - Sybil Attack Detection in Vehicular Networks
- Performance Evaluation of Various Malware Dynamics Models
- Analysis of Attack Vectors on Smart Home Systems

Module 3: Blockchain Technology in IoT

- Technical Aspects
- Integrated Platforms for IoT Enablement
- Intersections between IoT and Distributed Ledger
- Testing at Scale of IoT Blockchain Applications
- Access Control Framework for Security and Privacy of IoT
- Blockchain Applications in Healthcare

Module 4: Privacy Preservation in IoT

- Privacy Preservation Data Dissemination
    - Network Model
    - Threat Model
    - Problem Formulation and Definition
    - Baseline Data Dissemination
    - Spatial Privacy Graph-Based Data Dissemination
    - Experiment Validation
- Smart Building Concept
    - Privacy Threats in Smart Buildings
    - Privacy Preserving Approaches in Smart Buildings
    - Smart Meter Privacy Preserving Approaches

Module 5: Privacy Protection in IoT

- Lightweight and Robust Schemes for Privacy Protection in IoT Applications
    - One-Time Mask Scheme
    - One-Time Permutation Scheme
- Mobile Wireless Body Sensor Network
- Participatory Sensing

Module 6: Trust Models for IoT

- Trust Model Concepts
- Public Key Infrastructure (PKI) Architecture Components
- Public Key Certificate Formats
- Design Considerations for Digital Certificates
- Public Key Reference Infrastructure for IoT
- Authentication in IoT
- Computational Security for IoT

Module 7: Security Protocols for IoT Access Networks

- Time-Based Secure Key Generation
- Security Access Algorithm
    - Unidirectional Transmission
    - Bidirectional Transmission
- Cognitive Security
- IoT Security Framework
- Secure IoT Layers
- Secure Communication Links in IoT
- Secure Resource Management
- Secure IoT Databases