

**Department of Computer Science & Engineering
Indian Institute of Technology Patna**

Venue: R 407, Tutorial Block (Block 9)

GIAN Course Code :171013K06

GIAN Course Title: "Machine Learning and Its Role in the Internet of Things (IoT) Analytics"

Dates 4th to 8th Dec 2017

Program Plan

Date	Time	Description
4th Dec Monday	10:00 am-12:00 noon	Registration kit distribution
4th Dec Monday	2:00 pm-2:45 pm	Inauguration
4th Dec Monday	2:45 pm-3:00 pm	High Tea
4th Dec Monday	3:00 pm-5:00pm	Lecture 1: Course Overview; IoT Application to Smart homes, Smart cities, Healthcare, Energy; Case Study: Smart Agriculture, Wireless Communications- Bluetooth Low Energy, Zigbee, WiFi, Cellular, NFC, LoRaWAN
5th Dec Tuesday	10:00 am-12:00 noon	Lecture 2: Common vulnerabilities in IoT -Sniff & Replay in locks, Command injection and Hard-coded passwords in solar panels, Privilege escalation in Smart Locks, Buffer overflow and cross-site request forgery in wireless range extenders, Demonstration of vulnerabilities; Case Study: Sniff & Replay in a home security system
5th Dec Tuesday	2:30 pm-4:30 pm	Lecture 3: Data science and cybersecurity- Intrusion detection, Statistical anomalies. Supervised learning, Unsupervised learning
6th Dec Wednesday	10:00 am-12:00 noon	Deep Learning, Neural networks, Deep feedforward networks, Optimization of basic neural nets, Convolutional neural networks,

6th Dec Wednesday	2:30 pm-4:30 pm	Lecture 5: Deep models for text, Recurrent networks, Problem solving session with examples; Platforms for machine learning Tensorflow, H2O, scikit
7th Dec Thursday	10:00 am-12:00 noon	Lecture 6: Implement IoT datasets in R and Python; Predictive models for IOT datasets; Statistics for data transformation, Classification, Model training, tuning and evaluation, Problem solving session (Project: Choose a vertical and explain how IoT security is relevant)
8th Dec Friday	11:00 am-12:00 noon	Exam
8th Dec Friday	12:00 noon-1:00 pm	Distribute Participation Certificate
8th Dec Friday	1:00 pm to 2:30 pm	Lunch for the participants and invitees