LIST OF TOPICS for the SEMINAR
Internet of Things, 2019-2020

RESEARCH PAPERS

- **(802.15.4)** Beacon Synchronization and Duty-Cycling in IEEE 802.15.4 Cluster-Tree Networks: A Review

- **(BLE)** Multi-hop Real-time Communications over Bluetooth Low Energy Industrial Wireless Mesh Networks

- **(LORA)** On the Coverage of LPWANs: Range Evaluation and Channel Attenuation Model for LoRA Technology

- **(LORA)** Powering the IoT through embedded machine learning and LoRa
  https://ieeexplore.ieee.org/document/8355177

- **(LORAWAN)** Improving Reliability and Scalability of LoRaWANs Through Lightweight Scheduling Brecht Reynders

- **(LORAWAN)** LoRaWAN: Evaluation of Link-and System-Level Performance

- **(6LOWPAN/RPL)** Performance Analysis of Routing Protocol for Low Power and Lossy Networks (RPL) in Large Scale Networks

- **(6LOWPAN/RPL)** RPL routing protocol in advanced metering infrastructures: An analysis of the unreliability problems

- **(MQTT)** MQTT-G: A Publish/Subscribe Protocol with Geolocation

- **(MQTT)** A comparative evaluation of AMQP and MQTT protocols over unstable and mobile networks

- **(COAP)** BDP-CoAP: Leveraging Bandwidth-Delay Product for Congestion Control in CoAP
✓ **[COAP]** CoAP congestion control for the Internet of Things

✓ **[COAP]** CoAP Proxy Virtualization for the Web of Things

✓ **[TCP]** TCP in the Internet of Things: From Ostracism to Prominence

✓ **WEB of Things)** From Raw Data to Smart Manufacturing: AI and Semantic Web of Things for Industry 4.0
   https://ieeexplore.ieee.org/document/8497012

✓ **WEB of Things]** WoT-AD: A Descriptive Language for Group of Things in Massive IoT
   https://ieeexplore.ieee.org/document/8767228

✓ **WEB of Things)** A Car as a Semantic Web Thing: Motivation and Demonstration

✓ **[IoT DATA MANAGEMENT]** MongoDB-Based Repository Design for IoT-Generated RFID/Sensor Big Data

✓ **[IoT DATA ANALYTICS]** Deep Belief Network for Meteorological Time Series Prediction in the Internet of Things

✓ **[PRIVACY]** Privacy-Preserving Content-Oriented Wireless Communication in Internet-of-Things
(PRIVACY) Security and Privacy Analyses of Internet of Things Children’s Toys

(CROWDSOURCING) Coastal Monitoring System Based on Social Internet of Things Platform
https://ieeexplore.ieee.org/document/8906096

(WIDE AREA MONITORING) Design of a wireless sensor network based IoT platform for wide area and heterogeneous applications

(SMART AGRICULTURE) A Low Power IoT Network for Smart Agriculture

(FOG/EDGE COMPUTING) Adaptive Transmission Optimization in SDN-Based Industrial Internet of Things With Edge Computing

(FOG/EDGE COMPUTING) Comparison of edge computing implementations: Fog computing, cloudlet and mobile edge computing

(FOG/EDGE COMPUTING) Multitier Fog Computing With Large-Scale IoT Data Analytics for Smart Cities

(FOG/EDGE COMPUTING) Application Aware Workload Allocation for Edge Computing based IoT

(MACHINE LEARNING) Powering the IoT through embedded machine learning and LoRa

(MACHINE LEARNING) Learning IoT in Edge: Deep Learning for the Internet of Things with Edge Computing

(MACHINE LEARNING) A New Deep-Q-Learning-Based Transmission Scheduling Mechanism for the Cognitive Internet of Things

(GENERAL) Making Internet of Things Real
https://ieeexplore.ieee.org/document/8835419

(GENERAL) Natural Language for an Interoperable Internet of Simple Things
https://ieeexplore.ieee.org/document/8767215

(GENERAL) EmIoT: Giving Emotional Intelligence to the Internet of Things
TECHNOLOGIES, TOOLS and STANDARDS

The links below must be considered entry points from where to start the search for additional documents/resources. Moreover, students might consider to integrate the slides with a live demo of the tool/technology being presented.

- Ingenu, Machine Network
  https://www.ingenu.com/technology/machine-network/

- IOTivity
  https://openconnectivity.org/developer/reference-implementation/iotivity

- Cylon.js
  https://cylonjs.com

- Node-RED
  https://nodered.org

- Open Time Series Database (Open TSDB)
  http://opentsdb.net

- Contiki
  http://www.contiki-os.org/

- Amazon FreeRTOS
  https://aws.amazon.com/it/freertos/

- Apache Kafka
  https://kafka.apache.org/

- Apache Beam
  https://beam.apache.org

- MainFlux
  https://www.mainflux.com

- MicroPython
  https://micropython.org

- EclipseKura
  https://www.eclipse.org/kura/index.php

- Iota
  https://www.iota.org

- Balena
  https://www.balena.io