Course Name: **Internet of Things (IoT) Systems and Technologies**

Course Code: **INMMA0211-17**

Lecturer: **Dr. Habil. Zoltán Gál, associate professor**

https://www.inf.unideb.hu/en/node/1085

Academic year: **2018/2019**

Course lectures: **2 hours/week**

A. Course Outline:

1. Introduction and historical background of the IoT
2. Standards of the IoT: IEEE, ETSI, OneM2M, ITU, IETF, NIST, OASIS, W3C
3. Industrial activity in IoT: SAP, Cisco, HP, Libelium, Xilinx, Intel
4. Architectural view of the IoT: Generic user, Physical entity, Device, Sensor OS: TinyOS, Contiki, RIOT, Middleware, Resources, Services
5. Addressing in IoT: IPv6 for Things: 7LoWPAN, Electronic Product Code
6. Programmability in IoT: Smart devices, paradigm
7. Virtualization in IoT: Software Defined Network (SDN), Network Function Virtualization (NFV)
8. Web of Things (WoT): IoT/WoT evolution, WoT ecosystem, integration methods into WoT
9. IoT-aware Process Modeling Concept (IAPMC): pilars of the IAPMC
10. Conclusions: actual international IoT trends (EU/USA/Japan/China)

B. References:

1) Towards a definition of the Internet of Things (IoT): http://iot.ieee.org/images/files/pdf/IEEE_IoT_Towards_Definition_Internet_of_Things_Revision1_27MAY15.pdf
2) Ovidiu Vermesan, Peter Friess, Building the Hyperconnected Society - IoT Research and Innovation Value Chains, Ecosystems and Markets, River Publishers, 2015. http://www.internet-of-things-research.eu/pdf/Building_the_Hyperconnected_Society_IERC_2015_Cluster_eBook_978-87-93237-98-8_P_Web.pdf
3) Luis Felipe, Del Carpio, María Inés Robles, Roberto Morabito, Filip Mestanov: 6LoWPAN over 802.11, 2015 https://mentor.ieee.org/.../11-15-1085-00-0wng-6lowpan.pptx
4) Isam Ishaq *, David Carels, Girum K. Teklemariam, Jeroen Hoebeke, Floris Van den Abeele, Eli De Poorter, Ingrid Moerman and Piet Demeester: IETF Standardization in the Field of the Internet of Things (IoT): A Survey http://www.mdpi.com/2224-2708/2/2/235/htm
5) Justyan Bak (Riberbed Technology): SDN & NFV: Friends or Enemies? http://www.slideshare.net/fullscreen/pontschek/sdn-and-nfvfriendsorenemies/5
6) Hengkz Hank Susanato (Sing Lab): Introduction to Software Defined Network (SDN)
7) Raj Jain (Washington University in Saint Louis): Introduction to Network Function Virtualization (NFV)