

Module title Internet of Things				
Module code YIOT	Level Bachelor (B.Sc.)	Hours per week 4	ECTS credits 5	Duration 2 weeks block course + virtual lectures
Module instructor Dr. Dr. Mikhail Komarov, National Research University Higher School of Economics, Moscow, Russia	Lecture type Regular lecture, on line consultations, in-class exercises	Prerequisite(s) Understanding network technologies The course does not require technical IT skills like programming or developing databases.		Grading Final report (group and/or individual) (12-15 pages) in English
Objectives The general goal of the course is to prepare graduates for effective performance of the managerial role of working with the Internet of Things (Internet of Services), collection, storage and processing of the data received from the IoT, work in teams and to be able to further commercialize collected data. Therefore, aims of the course are:				
<ul style="list-style-type: none"> • To deeply involve students into the actual problems connected to the IoT. • To present an overview of different sources of big data and how that data is processed and stored. • To equip students with the knowledge of the major business-models which might be used. • To equip students with the knowledge of basic principles of developing and managing IoT systems. 				
Content				
<ul style="list-style-type: none"> • Introduction to IoT. Big Data in IoT. • Challenges and open issues in IoT. • Web 2.0, Web 3.0. Emerging Internet of Services, web of services. • Mobile applications and business opportunities. • Mobile operators and their business opportunities. • Capillary networks. • Open Innovations and crowd-sourcing. 				
Textbook/teaching material				
<ul style="list-style-type: none"> • Ovidiu Vermesan, Peter Friess "Internet of Things: Converging Technologies for Smart Environments and Integrated Ecosystems", River Publishers, 2013 (available online as PDF for free) • Vojislav B. Mistic, Jelena Mistic Machine-to-Machine Communications: Architectures, Technology, Standards, and Applications", CRC Press, 2014. • K.C. Chen Machine-to-Machine Communications for Healthcare, Journal of Computing Science and Engineering, Vol. 6, No. 2, June 2012, pp. 119-126 • Juniper Networks: M2M the rise of machines, http://www.slideshare.net/jpocalles/machine-to-machine-white-paper • Akyildiz, I. F., Jornet, J. M., and Pierobon, M. "Nanonetworks: A New Frontier in Communications," Communications of the ACM, vol. 54, no. 11, pp. 84-89, November 2011. http://www.ece.gatech.edu/research/labs/bwn/papers/2011/j12.pdf • Akyildiz, I. F. and Jornet, J. M., "The Internet of Nano-Things," IEEE Wireless Communication Magazine, vol. 17, no. 6, pp. 58-63, December 2010 http://www.ece.gatech.edu/research/labs/bwn/surveys/nanothings.pdf • In Lee (Ed) "Mobile applications and knowledge advancements in e-business", Idea Group Inc (IGI) , 2013. • Michael Mordhorst, "How to Help Enterprises Going Mobile: Investigation on Influences and Requirements of Business Apps Within Enterprise Mobility", Anchor Academic Publishing, 2014 				

Note: this is not the official course descriptor according to the "Studien- und Prüfungsordnung" (SPO)