

Internet of Things (IoT) and Wireless Sensor Networks

Department of Computer Science & Engineering, Dr. B.R. Ambedkar National Institute of Technology Jalandhar has conducted a TEQIP-III sponsored one-week short term course on '**Internet of Things(IoT) and Wireless Sensor Networks**' under the TI University Program during 20 Oct to 24 Oct 2019. The main focus of the course was to provide a suitable platform to students to understand the most promising technologies of this era: internet of things, wireless sensor networks and cloud computing, and their integration for a variety of applications like smart cities, intelligent appliances, smart homes, etc. Most of the sessions in the course were hands-on, covering the working with wireless microcontroller kits and the programming of the same for wireless connectivity. The workshop was structured and tailored to meet the need of participants to get a very good exposure to internet-enabled systems.

The hands-on workshop covers the architecture of TI CC3200 which is a wireless microcontroller and the first in the industry to evolve to a single microcontroller programmable to wireless (Wi-Fi standard) connectivity. The course was designed beautifully so that the participants can easily understand the current challenges and trends in the field of IoT. Following contents were covered during these days.

- Learning basic building blocks of IoT.
- Learning essential Embedded system basics applicable to IoT.
- Hands-on experience in the wireless interface using RF.
- Hands-on experience in working Wi-Fi certified IoT kit using CC3200ARM.
- Cortex M432 bit microcontroller.
- Hands-on experience in cloud applications.



Prof. Lalit Kumar Awasthi, Director, NIT Jalandhar was inaugurated the course and encouraged participants to learn such latest technologies like internet of things, machine learning, cloud computing to enhance their skillset and be ready for the upcoming industry demands. Also, he emphasized to give more focus on practical knowledge rather than only

theories by involving in some live projects. He said that all the domestic devices will be controlled through the internet in the future and hence learning these technology advancements is quite essential for everyone. At the end, he congratulated the participants for attending this short term course and, appreciated the course coordinators Prof. A L Sangal, Prof. Harsh Kumar Verma and course convener Dr. K P Sharma for organizing this hands-on course.

Prof. Harsh Verma, HoD, Computer Science & Engineering Department focussed on the accomplishments of the CSE Department. He told about how Internet of Things and Wireless Sensor Networks are now used to develop smart things i.e. smart buildings, watches etc. He highlighted that the Department of Computer Science and Engineering has conducted many such short term courses and faculty development programs in the emerging areas of Computer Science to enhance technological awareness. Further, he stressed the need of continuous learning and the need for trained professionals.

Prof. A.L. Sangal, Dean Student Welfare talked about the applications of IoT systems and the challenges faced in real-world implementation. He further stressed on the limitations of using these techniques and how they can affect our day to day life. He urged the participants to focus on the limitations and work towards its improvement. Most of the hands-on sessions of the course were conducted by Shri. V.S. Ramesh, Director, STEPS Knowledge Service Pvt. Ltd. He focused about the wide scope of IoT applications and possible opportunities in the field. Also, he said about the security issues related to the communication devices and said how such sensing devices can be harmful if not handled securely and efficiently. During course, the participants were provided microcontroller kits, using which they have implemented different IoT applications.

