

Department of
**Electronics and Communication
Engineering**



Jaypee University of Information Technology Waknaghat

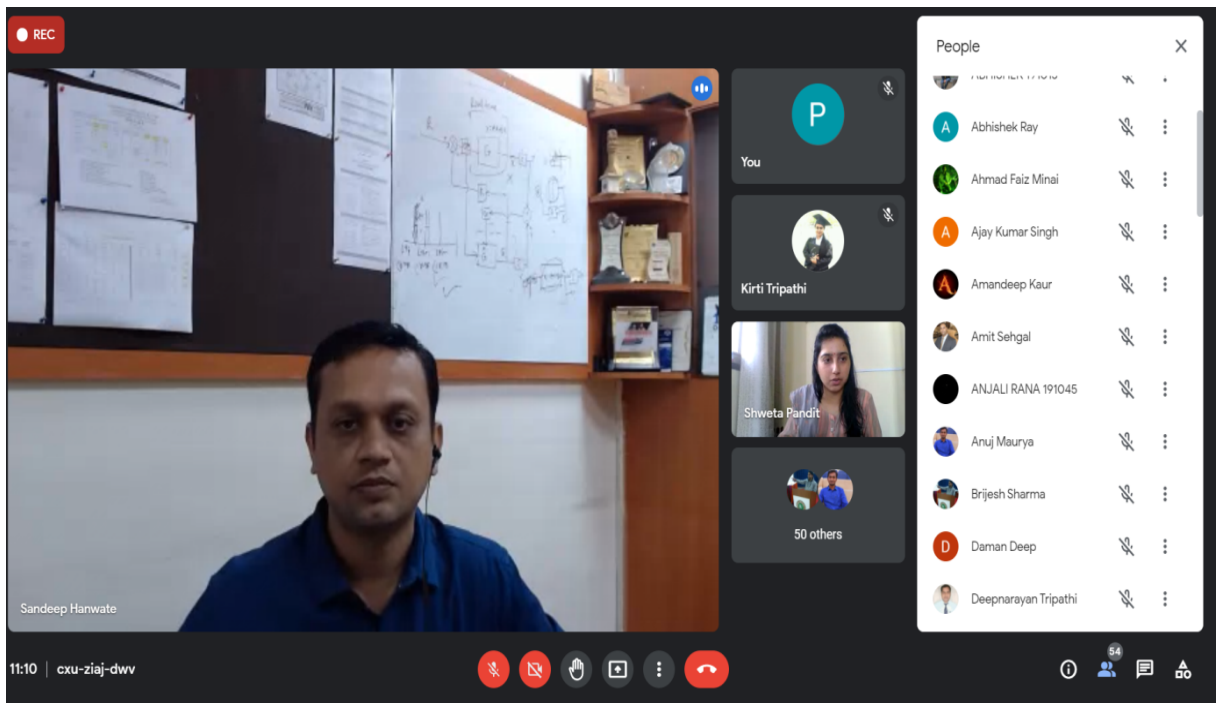
Event Report: Session-3

17th July, 2021

Department of Electronics and Communication Engineering of Jaypee University of Information Technology, Solan organized an amazing third session of “Workshop on Industrial Revolution 4.0” on 17th July 2021. The topic of the third session was “**Design of Smart Sensors**” delivered by our honourable speaker **Dr. Sandeep D. Hanwate**, Assistant Professor, Collage of Engineering Pune.



Our eminent speaker invited and introduced by **Dr. Shweta Pandit**, Assistant Professor, Department of Electronics and Communication Engineering served as an inspiration to several faculty members and students of Electronics and Communication Engineering by delivering his motivation towards the domain of Internet of Things, specially designing and applications of sensors.



With vast knowledge in the field of IoT, Dr. Hanwate explained the role of sensors in our daily life, difference between sensor and transducer. He continued explaining its applications, how it is designed and types of sensors.

REC Sandeep Hanwate is presenting

General Architecture of A Smart Sensor

11:46 | cxu-ziaj-dwv

He also highlighted the importance of sensors in Industry 4.0 ‘The Fourth Industrial Revolution’. He broadly discussed about the types & architecture of sensors, designing and its uses.

REC Sandeep Hanwate is presenting

APPLICATIONS OF SMART SENSORS

- **Accelerometer:**
 - It consists of the sensing element and electronics on silicon.
 - The accelerometer itself is a metal-coated SiO₂ cantilever beam that is fabricated on silicon chip where the capacitance between the beam and the substrate provides the output signal.
- **Infrared detector array:**
 - It is developed at solid laboratory of university of Michigan. Here infrared sensing element is developed using polysilicon.

12:04 | cxu-ziaj-dwv

REC Sandeep Hanwate is presenting

Smart and Intelligent Transmitters:

- Smart Transmitter: It is a compact unit comprising a sensor (or sensors), analog signal processing unit, transmitter circuit and a communication port.
- Intelligent Transmitter: It is a compact unit comprising a sensor (or sensors), analog signal processing unit, data processor, communication interface and a communication port.
- The SMART transmitter stands for Single Modular Auto-ranging Remote Transducer.

Variants:

- A - Smart transmitter with analog output
- B - Intelligent transmitter with digital wired input-output
- C - Intelligent transmitter with digital wireless input-output
- D - Intelligent HART transmitter
- E - Intelligent HART transmitter with advanced features

12:08 | cxu-ziaj-dwv

Participants: You, Sandeep Hanwate, Shweta Pandit, 78 others

REC Sandeep Hanwate is presenting

References:

- [1] A. K. Sawhney and P. Sawhney, *A course in electrical and electronic measurements and instrumentation*, 11th ed. Dhanpat Rai Publication, 2016.
- [2] <https://instrumentationtools.com/4-20ma-transmitter-works/>
- [3] Doebelin E. O. *Measurement Systems - Application and Design*, Fourth edition, McGraw-Hill International Edition, New York, 1992.
- [4] R.S. Sedha "Electronic Measurement and Instrumentation"

12:26 | cxu-ziaj-dwv

Participants: You, ravi sankar chandu, Shweta Pandit, 75 others

In-call messages

Ravi Sankar Chandu 11:59
useful. prof.Ravi Sankar Chandu, <https://see-india.in/>

Santosh Patra 12:00
Fruitful session.

Santosh Patra 12:23
Good session.

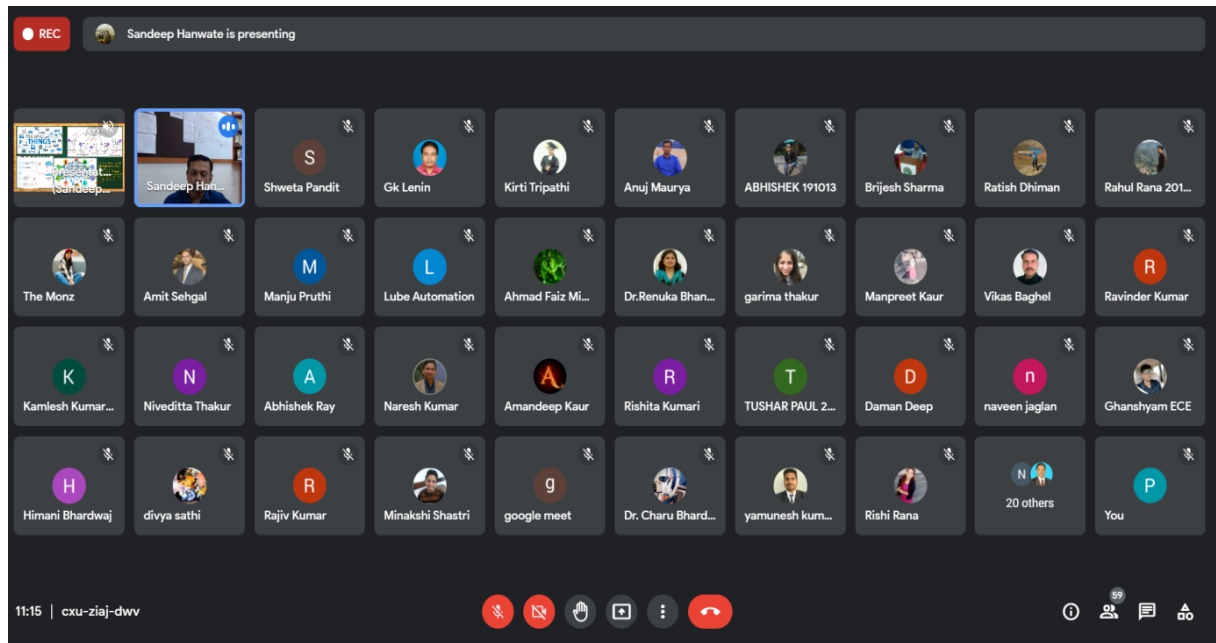
Vikas Baghel 12:25
Feedback form link: <https://forms.gle/LJR6nSyWBsHBaoh7>
Kindly fill the form. Thank you.

Dr. Priyanka Mishra 12:26
Really nice session

DR. GAURAV VIJAY 12:26
Very Nice session...
Thanks for all

Send a message to everyone

Two hour session on Design of Sensors was very fruitful, participants gained a lot of knowledge in this field and they really appreciated this session.



At last the several queries raised by the participants were answered and developed immense interest in various fields and applications.