COURSE	Name	: Transducers
	Code	: EE185141
	Credit(s)	: 3 Credit
	Semester	: I

Description of Course

The course of Transducers discusses: Temperature Sensors including Resistance Temperature Detector, Thermistor, Semiconductor Temperature Sensor, Thermocouple, Pyroelectric Sensor, and Noncontact Infrared Thermometers; Force and Pressure Sensors including Piezoresistive and Piezoelectric Gauges; Photodetectors including Photocathode, Photomultiplier Tube, Photoconductive, Photodiode, Phototransistor, and Charge-Coupled Device; Acoustic Sensors including Microphones, Ultrasonic Transducers, and Ultrasonic Imaging; Position & Displacement Transducers including Linear Variable Differential Transformer, Optical Encoder, Photonic Distance Sensor, Hall Effect Sensor, Inductive Proximity Sensor, Flowmeters, Inertial Measurement Unit sensors, and Motors; Chemical Sensors including Humidity & Moisture Sensors, Metal Oxide Chemical Sensors, Spectrophotometer, Photoplenthysmography, pH Measurement, and Dissolved Oxygen Sensors.

Learning Outcomes

Knowledge

(P02) Mastering engineering concepts and principles to develop the necessary procedures and strategies for systems analysis and design in the areas of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

Specific Skill

(KK02) Being able to compose problem solving in engineering through depth and breadth of knowledge which adapts to changes in science and technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

General Skill

(KU07) Being able to improve the capacity of learning independently

Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently

Course Learning Outcomes

Knowledge

Mastering engineering concepts and principles to develop the necessary procedures and strategies for systems analysis and design of transducers in the areas of electronics.

Specific Skill

Able to compose problem solving in transducers through depth and breadth of knowledge which adapts to changes in science and technology in electronics.

General Skill

Being able to improve the capacity of learning independently for the analysis, simulation, design, and application of transducers.

Attitude

Demonstrating attitude of responsibility regarding the analysis, simulation, design, and application of transducers independently.

Main Subjects

1. Temperature Sensors
2. Force and Pressure Sensors
3. Photodetectors
4. Acoustic Sensors
5. Displacement Transducers
6. Chemical Sensors
7. The applications of transducer technology

Reference(s)

[1] Muhammad Rivai, 2018. Diktat: Transduser.
[2] Jacob Fraden, 2016. Handbook of Modern Sensors: Physics, Designs, and Applications

Prerequisite(s)

--