

Course	BCA (Bachelor of Computer Applications)
Program Code	CS101
Subject Code	2CS1010504
Subject Title	SENSOR TECHNOLOGY-I
Pre-requisite	Basic Knowledge of Electronic, Circuits, and Sensor

Course Objective:

- The course provide good knowledge of working of different types of sensors used in various application areas.
- The course also provide knowledge of interfacing of electronic circuits with different sensors for its applications in different fields.

Teaching Scheme(Hours per week)				Evaluation Scheme (Marks)								
Lecture	Tutorial	Practical	Credit	Theory				Practical				Total
Lecture	Tutorial	Practica	Credit	University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		Total
				Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	Min. Marks	Max. Marks	
3	--	--	3	28	70	12	30	--	--	--	--	100

Subject Contents			
Sr. No	Topics	Total Hours	Weight (%)
1	Sensor Fundamentals and Characteristics: Introduction of Sensor, Sensor Classification, Application of Sensor, Advantages and Disadvantages of Sensors, Features of Sensors, Rules for Good Sensor	9	20
2	Physical Principles of Sensing Electric Charges, Fields, and Potentials, Capacitance Magnetism, Induction Resistance, Piezoelectric Effect, Hall Effect, Temperature and Thermal Properties of Material, Heat Transfer Light, Dynamic Models of Sensor Elements	9	20
3	Interface Electronic Circuits Input Characteristics of Interface Circuits, Amplifiers, Excitation Circuits, Analog to Digital Converters, Direct Digitization and Processing, Bridge Circuits, Data Transmission, Batteries for Low Power Sensors	10	20
4	Sensors in Different Application Area Occupancy and Motion Detectors, Position, Displacement, and Level Velocity and Acceleration, Force, Strain, and Tactile Sensors, Pressure Sensors, Temperature Sensors Sensor Materials and Technologies Materials, Surface Processing, Nano-Technology	10	20
5	Types Of Boards For Sensor Technology Introduction of Arduino, Advantages and Disadvantages of Arduino, application of Arduino Introduction of RASPBERRY, Advantages and Disadvantages of RASPBERRY, Application of RASPBERRY	10	20

Course Learning Outcomes (CLO.):

At the end of this course, the student would be able

CLO1. To have fundamental knowledge of Sensor.

CLO2. To have fundamental knowledge of Physical Principles of Sensing.

CLO3. To have fundamental knowledge of Electronic Circuits.

CLO4. To have fundamental knowledge of Sensor Materials and Technologies.

CLO5. To have fundamental knowledge of Types of Boards for Sensor Technology.

Mapping of CLO, PO and PSO

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO.1	PSO.2	PSO.13
CLO.1	L	M		L				M		L		L		L	L
CLO.2	L	M	M	L			L	M						L	
CLO.3	L	M	M	L		L		L		L		L		L	L
CLO.4		L	L			M	L		L			L		M	
CLO.5		L	M	L	L	M	M	M			L		L	M	

Course Outcome:

At the end of this course, the student would be able to

1. Understand the concept of sensors and its characteristics.
2. Understand the practical approach in design of technology based on different sensors
3. Learn various sensor materials and technology used in designing sensors

List of References:

1. J. Fraden, Handbook of Modern Sensors Physical, Designs, and Applications, AIP Press, Springer
2. D. Patranabis, Sensors and Transducers, PHI Publication, New Delhi
3. Mechatronics- Ganesh S. Hegde, Published by University Science Press (An imprint of Laxmi Publication Private Limited).

E-Resources/ Web Links:

1. <https://www.market-prospects.com/articles/what-is-smart-sensor-technology>
2. <https://www.electronicshub.org/different-types-sensors/>
3. <https://www.pdfdrive.com/industrial-sensors-and-controls-in-communication-networks-from-wired-technologies-to-cloud-computing-and-the-internet-of-things-e187172525.html>
4. <https://www.pdfdrive.com/measurement-instrumentation-and-sensors-handbook-electromagnetic-optical-radiation-chemical-and-biomedical-measurement-e157759155.html>