

Assignment on Chapter 3 – Sensors in the control Loop

Q1) Given the following measured values taken from an analogue pressure sensor, fill the table and determine if the sensor needs to be calibrated if the tolerance level is 1%. **(2 Marks)**

INPUT VALUES		Output Value			
% of Span	Ideal Values	↓Measured Values↑ (mA)		↓Deviation (Error)↑	
0%	1 mA	1.005	1.007		
25%	2 mA	2.007	2.008		
50%	3 mA	3.009	3.009		
75%	4 mA	4.012	4.013		
100%	5 mA	5.015	5.016		

Q2) Give examples (other than the ones discussed in class) for the three major types of sensor fusion applications. **(3 Marks)**

Q3) Given these initial few samples of a noisy sensor data stream 0.3, 0.6, 0.7, 0.9, 0.8, 0.75, 0.65, where 0.3 is the first sample. Trace and show your calculations for the operation of a MA filter with 4 taps. **(5 Marks)**