

**FACULTY OF MANUFACTURING ENGINEERING
UNIVERSITI MALAYSIA PAHANG**

1	Course Code and Name	BFF 3302 SENSOR AND INSTRUMENTATION SYSTEMS															
2	Semester / Year	Semester 5 / Year 3															
3	Program Level/Category	Degree / Instrumentation and Control															
4	Unit	2 Credits															
5	Prerequisite Course	BFF1303 ELECTRICAL/ELECTRONICS ENGINEERING															
6	Contact Hours	Lecture	1 unit					1H X 14 weeks									
		Tutorial	0 unit					0H X 14 weeks									
		Laboratory	1 unit					2H X 14 weeks									
7	Course Synopsis	This course covers instrumentations system including instrument principles, measurement techniques and data analysis for a particular sensor and measurement situation.															
8	Course Outcomes	<p>By the end of semester, students should be able to:</p> <p>CO1: Determine general treatment of instruments and their characteristics</p> <p>CO2: Analyse transducer elements, intermediate elements and data acquisition systems (DAQ)</p> <p>CO3: Determine principles of the work and derive mathematical model of sensors for measuring motion and vibration, dimensional metrology, force, torque and power, pressure, temperature, flow and acoustics.</p> <p>CO4: Develop team-oriented project for interfacing data acquisition system with applications.</p>															
9	CO-PO Mapping	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12			
		CO1	✓														
		CO2	✓														
		CO3					✓										
		CO4										✓					
10	Assessment Methods	Distribution (%)				CO1			CO2			CO3		CO4			
		Laboratory works				20%						✓					
		Assignments				10%			✓			✓					
		Test 1				25%			✓								
		Test 2				25%						✓					
		Project				20%								✓			
		Total				100%											
11	Learning References	<ol style="list-style-type: none"> B.C.Nakra and K.K. Chaudhry, 2012. Instrumentation measurement and analysis, 3rd ed., Tata-McGraw-Hill. Stephen E. Derenzo, 2003. Practical Interfacing in the Laboratory: Using a PC for Instrumentation, Data Analysis and Control, Cambridge University Press. W. Bolton, 2004. Instrumentation and Control Systems. Newnes. Jacob Fraden. 2010. Handbook of Modern Sensors. 4th Edition. Springer. 															
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Teaching plan reference number: BFF3302R5																	