MECHATRONICS-EL 2
Semester III (Production Engineering) SUB CODE: MEPR303-A
Teaching Scheme (Credits and Hours)

Teaching Scheme				Total Credit	Evaluation Scheme					Total Marks
L	T	P	Total		THEORY		IE	CIA	PR. / VIVO	
					Hrs	Marks	Marks	Marks	Marks	
Hrs	Hrs	Hrs	Hrs							
3	0	0	3	3	3	70	30	20	0	120

LEARNING OBJECTIVES:
The objective of this course is
To learn various concepts related to controls, signals, hydraulic systems

LESSON PLANNING

SR.NO	CHAPTER NO	DATE/WEEK	%WEIGTAGE
1	1,2	1^{st} 2^{nd} 3^{rd}	20
2	3,4	4^{th} 5^{th} 6^{th}	20
3	5,6	7^{th} 8^{th} 9^{th}	20
4	7	10^{th} 11^{th} 12^{th}	20
5	8	13^{th} 14^{th} 15^{th}	20

Total hours (Theory): 45, Total hours (Practical):00, Total hours: 45

DETAILED SYLLABUS

Chap. No.	Topic
1	**Mechatronics:** Integrated Design issues-Key element
2	Design process-Advanced approaches in Mechatronics
3	**Sensors & Transducers** Introduction to sensors and transducers, Sensors for motion and position measurement
4	Torque and tactile sensors, flow sensors, temperature sensing devices, ultrasonic sensors, range sensors
5	Force sensors, vibration control using magneto structure transducers, fiber optic devices in mechatronics
6	**DC and AC Drives:** stepper motor, servo motor, fluid power-design elements, piezoelectric actuators
7	**Introduction to signals:** systems and controls, system representation, Linearization of Non linear systems, time delays,
8	**Measures of system performance**: Root locus and Bode plots. Sensors for condition monitoring, Mechatronic control in Automated manufacturing, Artificial Intelligence and Fuzzy Logic applications in Mechatronics, Micro Sensors and Case studies.

INSTRUCTIONAL METHOD AND PEDAGOGY (Continuous Internal Assessment (CIA) Scheme)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc. & equal weightage should be given to all units while conducting teaching & examination.

- Attendance is compulsory in lectures and Tutorial.
- Viva Voce will be conducted at the end of the semester of 30 Marks.
- One internal exam of 30 marks is conducted as a part of Mid semester evaluation.

STUDENTS LEARNING OUTCOMES:

At the end of the course

The students will gain an experience in the implementation of various sensors, signals for industrial automation

References:

1. Devadas Shetty and Richard A. Kolk, “Mechatronics system design” - PWS publishing company.1997
2. " Mechatronics Theory and Applications" - Edited by BOSCH, 1998
3. W.Bolton, “Mechatronics”, Longmen, 1999
4. " Mechatronics ", Edited by HMT,Bangalore 1998.
5. D.A. Bradly, D. Dawson, N.C.Burd and A.J. Loader, “Mechatonics” - Electronics in Products and Processes, Chapmall and Hall, 1993.