1.	Title of the course	Mechatronics
2.	Course number	ME403M
3.	Structure of credits	3-0-2-4
4.	Offered to	UG
5.	New course/modification to	Modification To ME4202/8
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** This course is designed to enable the student to model, analyse and control engineering systems, select appropriate sensors, transducers and actuators to monitor and control the behaviour of a process or product, develop programmable logic controller (PLC) programs for a given task, evaluate the performance of mechatronic systems	
10.	**Course Content:** Elements of mechatronic systems, sensors for measurement of displacement, force, torque, temperature, acceleration, velocity and flow, electrical actuators, hydraulic and pneumatic actuators, piezoelectric actuators, shape memory actuators, modelling of mechanical, electrical, fluid and thermal systems, block diagram representations, dynamic responses of system, transfer function, modelling dynamic systems, digital electronics, signal conditioning, closed loop and open loop systems, continuous and discrete processes, proportional, derivative, integral controllers, PLC programming, case studies; Lab component: Modelling and analysis of basic electrical, hydraulic and pneumatic systems using LAB-VIEW, speed control of AC and DC drives, servo controller interfacing for DC motor.	
11.	**Textbook(s):** 1. Alcaiatore D G, *Introduction to Mechatronics and Measuring Systems*, 4th Edition, Mc. Graw Hill Int. (2017). 2. Bolton W, *Mechatronics, Electronic control systems in mechanical and electrical engineering*, 7th Edition, Pearson Education (2018).	
12.	**Reference(s):** 1. Bishop R H, *The Mechatronics Handbook*, 2nd Edition, CRC Press (2007). 2. de Silva C,Mechatronics: A Foundation Course, 1st Edition, CRC Press/Taylor Francis (2010). 3. Necsulescu D S, *Mechatronics*, 1st Edition, Prentice Hall (2002).	