

ME6712 - MECHATRONICS LABORATORY

OBJECTIVES

To know the method of programming the microprocessor and also the design, modelling & analysis of basic electrical, hydraulic & pneumatic Systems which enable the students to understand the concept of mechatronics.

LIST OF EXPERIMENTS

1. Assembly language programming of 8085 - Addition - Subtraction - Multiplication - Division - Sorting - Code Conversion.
2. Stepper motor interface.
3. Traffic light interface.
4. Speed control of DC motor.
5. Study of various types of transducers.
6. Study of hydraulic, pneumatic and electro-pneumatic circuits.
7. Modelling and analysis of basic hydraulic, pneumatic and electrical circuits using Software.
8. Study of PLC and its applications.
9. Study of image processing technique.

OUTCOMES

Upon completion of this course, the students can able to design Mechatronics system with the help of Microprocessor, PLC and other electrical and Electronics Circuits.

LIST OF EQUIPMENT FOR A BATCH OF 30 STUDENTS

S.NO	NAME OF THE EQUIPMENT	Qty
1.	Basic Pneumatic Trainer Kit with manual and electrical controls/ PLC Control.	1
2.	Basic Hydraulic Trainer Kit	1
3.	Hydraulics and Pneumatics Systems Simulation Software	10
4.	8051 - Microcontroller kit with stepper motor and drive circuit sets	2
5.	Image processing system with hardware & software	1

Thth Sem Lab Manual For Mechatronics

Guillaume Favre



Thth Sem Lab Manual For Mechatronics:

Embedded Computing and Mechatronics with the PIC32 Microcontroller Kevin Lynch, Nicholas Marchuk, Matthew Elwin, 2015-12-08 For the first time in a single reference this book provides the beginner with a coherent and logical introduction to the hardware and software of the PIC32 bringing together key material from the PIC32 Reference Manual Data Sheets XC32 C Compiler User's Guide Assembler and Linker Guide MIPS32 CPU manuals and Harmony documentation This book also trains you to use the Microchip documentation allowing better life long learning of the PIC32 The philosophy is to get you started quickly but to emphasize fundamentals and to eliminate magic steps that prevent a deep understanding of how the software you write connects to the hardware Applications focus on mechatronics microcontroller controlled electromechanical systems incorporating sensors and actuators To support a learn by doing approach you can follow the examples throughout the book using the sample code and your PIC32 development board The exercises at the end of each chapter help you put your new skills to practice Coverage includes A practical introduction to the C programming language Getting up and running quickly with the PIC32 An exploration of the hardware architecture of the PIC32 and differences among PIC32 families Fundamentals of embedded computing with the PIC32 including the build process time and memory efficient programming and interrupts A peripheral reference with extensive sample code covering digital input and output counter timers PWM analog input input capture watchdog timer and communication by the parallel master port SPI I2C CAN USB and UART An introduction to the Microchip Harmony programming framework Essential topics in mechatronics including interfacing sensors to the PIC32 digital signal processing theory of operation and control of brushed DC motors motor sizing and gearing and other actuators such as stepper motors RC servos and brushless DC motors For more information on the book and to download free sample code please visit <http://www.nu32.org> Extensive freely downloadable sample code for the NU32 development board incorporating the PIC32MX795F512H microcontroller Free online instructional videos to support many of the chapters

Digital Transformation in Education and Artificial Intelligence Application Daniel Vasić, Emil Brajković, 2025-10-09 This book constitutes the proceedings of the Third International Conference on Digital Transformation in Education and Artificial Intelligence Applications MoStart 2025 held in Mostar Bosnia and Herzegovina during April 23-25, 2025 The 19 full papers were presented in this volume were carefully reviewed and selected from 39 submissions They focus on advanced educational technology intelligent systems robotics in education security within Industry 4.0 frameworks the implementation of large language models in personalized learning environments and broader cross disciplinary applications of AI

IEEE/CHMT International Electronic Manufacturing Technology Symposium, 1992

IEEE/ASME International Conference on Advanced Intelligent Mechatronics Proceedings, 2005

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Decoding **Thth Sem Lab Manual For Mechatronics**: Revealing the Captivating Potential of Verbal Expression

In an era characterized by interconnectedness and an insatiable thirst for knowledge, the captivating potential of verbal expression has emerged as a formidable force. Its ability to evoke sentiments, stimulate introspection, and incite profound transformations is genuinely awe-inspiring. Within the pages of "**Thth Sem Lab Manual For Mechatronics**," a mesmerizing literary creation penned by a celebrated wordsmith, readers set about an enlightening odyssey, unraveling the intricate significance of language and its enduring affect our lives. In this appraisal, we shall explore the book is central themes, evaluate its distinctive writing style, and gauge its pervasive influence on the hearts and minds of its readership.

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Thth Sem Lab Manual For Mechatronics Introduction

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