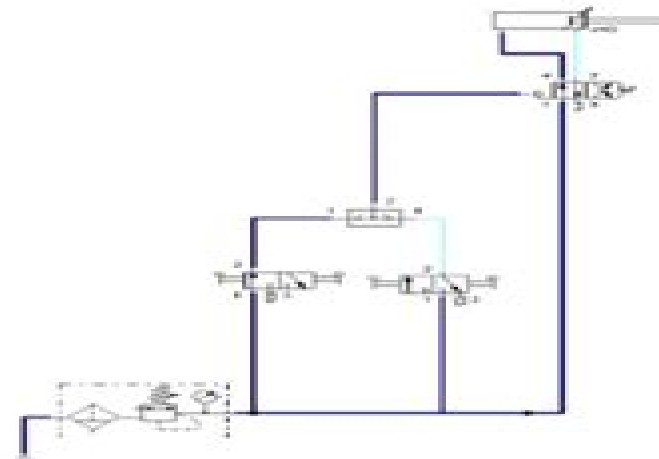
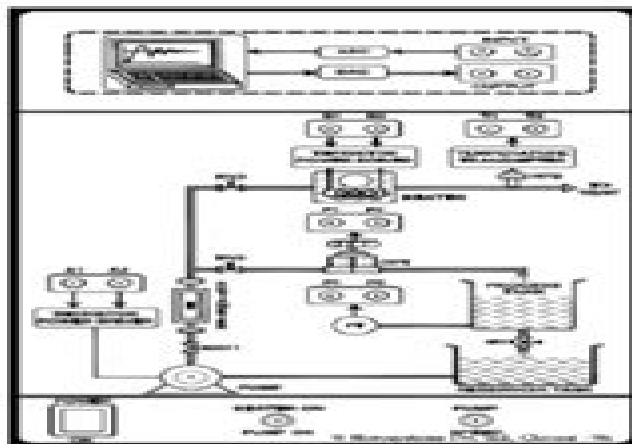




**DEPARTMENT OF MECHANICAL ENGINEERING**



**AUTOMATION LABORATORY MANUAL**

Prepared by

**MR.M.SARAVANAN**

**FACULTY OF MECHANICAL ENGINEERING,AVIT**

# Mdu Mtech Automation Lab Manual

**THOMAS L. FLOYD**



## **Mdu Mtech Automation Lab Manual:**

Thomas Register of American Manufacturers and Thomas Register Catalog File, 1997 Vols for 1970 71 includes manufacturers catalogs *Computer & Telecommunications Acronyms* Julie E. Towell, Helen E. Sheppard, Gale Research Company, 1986 *Manual for Studies in Automation Laboratory* Rijn de Groot, 1973\* **Lab Manual for Meade's Foundations of Electronics, 5th** Russell Meade, Robert Diffenderfer, 2006-05 The Lab Manual for FOUNDATIONS OF ELECTRONICS CIRCUITS DEVICES 5th Edition is a valuable tool designed to enhance your classroom experience Lab activities objectives materials lists step by step procedures illustrations review questions and more are all included *Lab Manual for Lobsiger's Electrical Control for Machines* Diane Lobsiger, 2014-09-12 The Laboratory Manual is a valuable tool designed to enhance your lab experience Lab activities objectives materials lists step by step procedures illustrations and review questions are commonly found in a Lab Manual **Automation and Material Handling Cell Guide** Lab-Volt Systems, Incorporated, 2005-09-01 Mechanical Engineering Laboratory Manual Earl Baldwin Smith, 1912 *Industrial Electronics* Paul Bernard Zbar, 1962 **The Electronics Manual to Industrial Automation** G. Randy Slone, 1987 Lab Manual for Electronic Devices, Global Edition THOMAS L. FLOYD, 2018-06-19 This laboratory manual is carefully coordinated to the text *Electronic Devices Tenth edition Global edition* by Thomas L Floyd The seventeen experiments correspond to the chapters in the text except the first experiment references Chapters 1 and the first part of Chapter 2 All of the experiments are subdivided into two or three Parts With one exception Experiment 12 B the Parts for the all experiments are completely independent of each other The instructor can assign any or all Parts of these experiments and in any order This format provides flexibility depending on the schedule laboratory time available and course objectives In addition experiments 12 through 16 provide two options for experiments These five experiments are divided into two major sections identified as A or B The A experiments continue with the format of previous experiments they are constructed with discrete components on standard protoboards as used in most electronic teaching laboratories The A experiments can be assigned in programs where traditional devices are emphasized Each B experiment has a similar format to the corresponding A experiment but uses a programmable Analog Signal Processor ASP that is controlled by free Computer Aided Design CAD software from the Anadigm company [www.anadigm.com](http://www.anadigm.com) These experiments support the Programmable Analog Design feature in the textbook The B experiments are also subdivided into independent Parts but Experiment 12 B Part 1 is a software tutorial and should be performed before any other B experiments This is an excellent way to introduce the ASP technology because no other hardware is required other than a computer running the downloaded software In addition to Experiment 12 B the first 13 steps of Experiment 15 B Part 2 are also tutorial in nature for the AnadigmFilter program This is an amazing active filter design tool that is easy to learn and is included with the AnadigmDesigner2 AD2 CAD software The ASP is part of a Programmable Analog Module PAM circuit board from the Servenger company [www.servenger.com](http://www.servenger.com) that interfaces to a

personal computer The PAM is controlled by the AD2 CAD software from the Anadigm company website Except for Experiment 12 B Part 1 it is assumed that the PAM is connected to the PC and AnadigmDesigner2 is running Experiment 16 B Part 3 also requires a spreadsheet program such as Microsoft Excel The PAM is described in detail in the Quick Start Guide Appendix B Instructors may choose to mix A and B experiments with no loss in continuity depending on course objectives and time We recommend that Experiment 12 B Part 1 be assigned if you want students to have an introduction to the ASP without requiring a hardware purchase A text feature is the Device Application DA at the end of most chapters All of the DAs have a related laboratory exercise using a similar circuit that is sometimes simplified to make laboratory time as efficient as possible The same text icon identifies the related DA exercise in the lab manual One issue is the trend of industry to smaller surface mount devices which are very difficult to work with and are not practical for most lab work For example almost all varactors are supplied as surface mount devices now In reviewing each experiment we have found components that can illustrate the device function with a traditional one The traditional through hole MV2109 varactor is listed as obsolete but will be available for the foreseeable future from Electronix Express [www.elexp.com](http://www.elexp.com) so it is called out in Experiment 3 All components are available from Electronix Express [www.elexp.com](http://www.elexp.com) as a kit of parts see list in Appendix A The format for each experiment has not changed from the last edition and is as follows Introduction A brief discussion about the experiment and comments about each of the independent Parts that follow Reading Reading assignment in the Floyd text related to the experiment Key Objectives A statement specific to each Part of the experiment of what the student should be able to do Components Needed A list components and small items required for each Part but not including the equipment found at a typical lab station Particular care has been exercised to select materials that are readily available and reusable keeping cost at a minimum Parts There are two or three independent parts to each experiment Needed tables graphs and figures are positioned close to the first referenced location to avoid confusion Step numbering starts fresh with each Part but figures and tables are numbered sequentially for the entire experiment to avoid multiple figures with the same number Conclusion At the end of each Part space is provided for a written conclusion Questions Each Part includes several questions that require the student to draw upon the laboratory work and check his or her understanding of the concepts Troubleshooting questions are frequently presented Multisim Simulation At the end of each A experiment except 1 one or more circuits are simulated in a Multisim computer simulation New Multisim troubleshooting problems have been added to this edition Multisim troubleshooting files are identified with the suffix f1 f2 etc in the file name standing for fault1 fault2 etc Other files with nf as the suffix include demonstrations or practice using instruments such as the Bode Plotter and the Spectrum Analyzer A special icon is shown with all figures that are related to the Multisim simulation Multisim files are found on the website [www.pearsonglobaledition.com](http://www.pearsonglobaledition.com) Floyd Microsoft PowerPoint slides are available at no cost to instructors for all experiments The slides reinforce the experiments with troubleshooting questions and a related problem and are available on the instructor s

resource site Each laboratory station should contain a dual variable regulated power supply a function generator a multimeter and a dual channel oscilloscope A list of all required materials is given in Appendix A along with information on acquiring the PAM As mentioned components are also available as a kit from Electronix Express the kit number is 32DBEDFL10     Lab Manual Buchla,1999-01     **Lab Manual** ,2022-12-28 This book contains Lab Manual of Mechanical Engineering Subject Lab Manual s Names are CAD Modelling Machine Shop Practice CNC and 3D printing Thermal Engineering Finite Element Analysis Dynamics of machinery Turbo Machinery Heating Ventilation and Air Conditioning Measurement and Automation Maintenance Engineering Above Mechanical Engineering Lab Manuals are as per R19 C Schemes syllabus of Mumbai University     Laboratory Automation in the Chemical Indus David G. Cork,Tohru Sugawara,2002-04-02 Featuring extensive calculations and examples this reference discusses theoretical and practical aspects of short circuit currents in ac and dc systems load flow and harmonic analyses to provide a sound knowledge base for modern computer based studies that can be utilized in real world applications Presenting more than 2300 figures tables and equations the author explores matrix methods for network solutions and includes load flow and optimization techniques He discusses ac and dc short circuit systems calculations in accordance with standards set by the American National Standards Institute ANSI and the International Electrotechnical Commission IEC     *Computer Automation, Module Guide* Lab-Volt Systems, Incorporated,2004-06-01     **Industrial Electronics** Paul B. Zbar,1972     **Automation and Material Handling, Cell Guide Level 2** Lab-Volt Systems, Incorporated,2004-02-01     **Lab Manual** Gregory L. Moss,1991     *Automation and Material Handling, Cell Guide Level 1* Lab-Volt Systems, Incorporated,2004-02-01     Mechanical Engineering Laboratory Manual Earl B Smith,2015-08-11 This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it This work was reproduced from the original artifact and remains as true to the original work as possible Therefore you will see the original copyright references library stamps as most of these works have been housed in our most important libraries around the world and other notations in the work This work is in the public domain in the United States of America and possibly other nations Within the United States you may freely copy and distribute this work as no entity individual or corporate has a copyright on the body of the work As a reproduction of a historical artifact this work may contain missing or blurred pages poor pictures errant marks etc Scholars believe and we concur that this work is important enough to be preserved reproduced and made generally available to the public We appreciate your support of the preservation process and thank you for being an important part of keeping this knowledge alive and relevant     *Lab Manual to Accompany Industrial Motor Control* Stephen L. Herman,1999

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