

ELECTRICAL CIRCUITS **SIMULATION LAB**

II Year - 2 Semesters
LABORATORY MANUAL

Department of
ELECTRICAL AND ELECTRONICS ENGINEERING

Electrical Circuits And Simulation Lab Manual Jntu

Patrick Vollmar



Electrical Circuits And Simulation Lab Manual Jntu:

Simulation Lab Manual for use with Electricity for the Trades Frank D. Petruzella, 2019-02-14 Lab Manual for Principles of Electric Circuits David Buchla, 2009-04-21 Lab Manual Introduction to Electric Circuits Robert T. Paynter, William Muckler, Maria Nicolai Paynter, 1998-11-01 **Laboratory Manual for Electronic Devices and Circuits** David A. Bell, 2001 This lab manual accompanies Electronic Devices and Circuits 4 e *Fundamentals of Electrical Circuits Lab Manual* Mr. Rohit Manglik, 2024-04-06 EduGorilla Publication is a trusted name in the education sector committed to empowering learners with high quality study materials and resources Specializing in competitive exams and academic support EduGorilla provides comprehensive and well structured content tailored to meet the needs of students across various streams and levels Lab Manual for Electric Circuits Timothy J. Maloney, 1984 *The Complete Laboratory Manual for Electricity* Stephen L. Herman, 2004-12 The Complete Laboratory Manual for Electricity 2E is the ultimate preparation resource for any curriculum dedicated to training electricians From basic electricity through AC theory transformers and motor controls all aspects of a typical electrical curriculum are explored in a single volume Hands on experiments that acquaint students with the theory and application of electrical concepts offer valuable experience in constructing a multitude of circuits such as series parallel combination RL series and parallel RC series and parallel and RLC series and parallel circuits Each lab features an explanation of the circuit to be connected with examples of the calculations necessary to complete the exercise and step by step procedures for conducting the experiment Labs use generic equipment and devices commonly found in most hardware stores and electrical supply houses and a materials list details the components necessary to perform all of the exercises *A Lab Manual for Electric Circuits* Chester Comstock, 1985-01-01 **Electrical Circuit Analysis Lab** Mr. Rohit Manglik, 2024-07-28 EduGorilla Publication is a trusted name in the education sector committed to empowering learners with high quality study materials and resources Specializing in competitive exams and academic support EduGorilla provides comprehensive and well structured content tailored to meet the needs of students across various streams and levels Electrical Circuits Roger Conant, 1980 Introduction to Electric Circuits Brian Kelly, 2014

Electric Circuits Laboratory Manual Farzin Asadi, 2024-03-29 This book provides insights into practical aspects of electric circuits The author provides real world examples throughout this book The devices chosen for this book can be found in nearly all laboratories No expensive measurement devices are used throughout the book Someone who reads this book has a better understanding of practical aspects of electric circuits Chapter 1 introduces tools that will be used in the next chapters Chapter 2 studies the resistors and contains 9 experiments Chapter 3 studies the digital multimeters and contains 7 experiments Chapter 4 studies Kirchhoff s voltage current law nodal mesh analysis and Thevenin equivalent circuits This chapter contains 5 experiments Chapter 5 studies the first and second order circuits RC RL and RLC and contains 4 experiments Chapter 6 studies the DC and AC steady state behavior of electric circuits and frequency response of filters and

has 5 experiments Chapter 7 studies magnetic coupling and transformers and contains 3 experiments Appendix A shows how different types of graphs can be drawn with MATLAB Appendix B reviews the concept of root mean square

Electric Circuits and Machines Eugene C. Lister, 1974 *Laboratory Manual to Accompany Electric Circuits for Technologists* Jack L. Waintraub, 1990

Circuit Systems with MATLAB and PSpice Won Y. Yang, 2012-03-02

- 1 Instead of the conventional method using the general particular solutions to solve differential equations for the circuits containing inductors capacitors this book lays emphasis on the Laplace transform method for solving differential equations We recommend taking the Laplace transform of electric circuits containing inductors capacitors and setting up the transformed circuit equations directly in the unified framework as if they were just made of resistors and sources rather than setting up the circuit equations in the form of differential equations and then taking their Laplace transforms to solve them The Laplace transform and the inverse Laplace transform are introduced in the Appendix 2 This book presents several MATLAB programs that can be used to get the Laplace transformed solutions take their inverse Laplace transforms and plot the solutions along the time or frequency axis The MATLAB programs can save a lot of time and effort for obtaining the solutions in the time domain or frequency domain so that readers can concentrate on establishing circuit equations gaining insights to the problems and making observations interpretations of the solutions 3 This book also introduces step by step how to use OrCAD PSpice for circuit simulations For circuit problems taking much time to solve by hand the readers are recommended to use MATLAB and PSpice This approach gives the readers not only information about the state of the art but also self confidence on the condition that the graphical solutions obtained by using the two software tools agree with each other The OrCAD PSpice is introduced in the Appendix However the portion of MATLAB and PSpice is kept not large lest the readers should be addicted to just using the software and tempted to neglect the importance of the basic circuit theory 4 We make each example show something different from other examples so that readers can efficiently acquire the essential circuit analysis techniques and gain insights into the various types of circuits On the other hand instead of repeating similar exercise problems we make most exercise problems arouse readers interest in practical application or help form a view for circuit application and design 5 For representative examples the analytical solutions are presented together with the results of MATLAB analysis close to the theory and PSpice simulation close to the experiment in the form of trinity We are sure that this style of presentation will interest many students attracting their attention to the topics on circuits efficiently 6 Unlike most circuit books with a similar title our book deals with positive feedback op amp circuits as well as negative feedback op amp circuits

Fundamentals of Electronic Devices and Circuits Lab Manual David Bell, 2009-11-22 The laboratory investigations in this manual are designed to demonstrate the theoretical principles set out in the book Fundamentals of Electronic Devices and Circuits 5 e A total of 43 laboratory investigations are offered involving the construction and testing of the circuits discussed in the textbook Each investigation can normally be completed within a two hour period The procedures contain some references to

the textbook however all necessary circuit and connection diagrams are provided in the manual so that investigations can also be preformed without the textbook *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 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 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 so it is called out in Experiment 3 All components are available from Electronix Express 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 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 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

Laboratory Manual For Electronic Devices And Circuits 4Th Ed. Bell, Electronic Circuits I and II Lab Manual Wayne M. Hope, 2004 **Laboratory Manual for Electric Circuits** Alexander W. Avtgis, 1970

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