

Pulse Amplitude Modulation Demodulation Lab Manual

An accessible undergraduate textbook introducing key fundamental principles behind modern communication systems, supported by exercises, software problems and lab exercises.

This book is designed to meet the needs of students following curricula at various universities. It is intended not only for engineering students, but can also be used by polytechnic and science students. The book has been broadly divided into six major areas. It is well equipped to meet the basic concepts for network and devices lab, basic devices lab, solid-state electronics (with design), integrated circuits lab, digital electronics (with design) lab, and basic communication Circuits lab. Through this book is designed for electronics and communication students, it also caters to other students such as those belonging to computer engineering, instrumentation and control engineering, information technology, biomedical engineering, chemical engineering, mechanical engineering and marine engineering.

Used collectively, PSPICE and MATLAB are unsurpassed for circuit modeling and data analysis. PSPICE can perform DC, AC, transient, Fourier, temperature, and Monte Carlo analysis of electronic circuits with device models and subsystem subcircuits.

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MATLAB can then carry out calculations of device parameters, curve fitting, numerical integration, nume

For second and third year introductory communication systems courses for undergraduates, or an introductory graduate course. This revision of Couch's authoritative text provides the latest treatment of digital communication systems. The author balances coverage of both digital and analog communication systems, with an emphasis on design. Students will gain a working knowledge of both classical mathematical and personal computer methods to analyze, design, and simulate modern communication systems. MATLAB is integrated throughout.

Showcasing the essential principles behind modern communication systems, this accessible undergraduate textbook provides a solid introduction to the foundations of communication theory. Carefully selected topics introduce students to the most important and fundamental concepts, giving students a focused, in-depth understanding of core material, and preparing them for more advanced study. Abstract concepts are introduced to students 'just in time' and reinforced by nearly 200 end-of-chapter exercises, alongside numerous MATLAB code fragments, software problems and practical lab exercises, firmly linking the underlying theory to real-world problems, and providing additional hands-on experience. Finally, an accessible lecture-style organisation makes it easy for students to navigate to key passages, and quickly identify the most relevant material. Containing material suitable for a one- or two-

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semester course, and accompanied online by a password-protected solutions manual and supporting instructor resources, this is the perfect introductory textbook for undergraduate students studying electrical and computer engineering.

Consists of abstracts of various of the Laboratory's journals.

Based on the popular Artech House classic, Digital Communication Systems Engineering with Software-Defined Radio, this book provides a practical approach to quickly learning the software-defined radio (SDR) concepts needed for work in the field. This up-to-date volume guides readers on how to quickly prototype wireless designs using SDR for real-world testing and experimentation. This book explores advanced wireless communication techniques such as OFDM, LTE, WLA, and hardware targeting. Readers will gain an understanding of the core concepts behind wireless hardware, such as the radio frequency front-end, analog-to-digital and digital-to-analog converters, as well as various processing technologies. Moreover, this volume includes chapters on timing estimation, matched filtering, frame synchronization message decoding, and source coding. The orthogonal frequency division multiplexing is explained and details about HDL code generation and deployment are provided. The book concludes with coverage of the WLAN toolbox with OFDM beacon reception and the LTE toolbox with downlink reception. Multiple case studies are provided throughout the book. Both MATLAB and Simulink source code are included to assist readers with their projects in the field.

Sections on important areas such as spread spectrum, cellular communications, and orthogonal frequency-division multiplexing are provided. * Computational examples are included, illustrating how to use the computer as a simulation tool, thereby allowing waveforms,

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spectra, and performance curves to be generated. * Overviews of the necessary background in signal, system, probability, and random process theory required for the analog and digital communications topics covered in the book.

Designed for senior electrical engineering students, this textbook explores the theoretical concepts of digital signal processing and communication systems by presenting laboratory experiments using real-time DSP hardware. The experiments are designed for the Texas Instruments TMS320C6701 Evaluation Module or TMS320C6711 DSK but can easily be adapted to other DSP boards. Each chapter begins with a presentation of the required theory and concludes with instructions for performing experiments to implement the theory. In the process of performing the experiments, students gain experience in working with software tools and equipment commonly used in industry.

An important look at bandwidth-efficient modulations with applications to today's Space program Based on research and results obtained at the California Institute of Technology's Jet Propulsion Laboratory, this timely book defines, describes, and then delineates the performance (power and bandwidth) of digital communication systems that incorporate a wide variety of bandwidth-efficient modulations appropriate for the design and implementation of space communications systems. The author compares the performance of these systems in the presence of a number of practical (non-ideal) transmitter and receiver characteristics such as modulator and phase imbalance, imperfect carrier synchronization, and transmitter nonlinearity. Although the material focuses on the deep space applications developed at the Jet Propulsion Laboratory, the presentation is sufficiently broad as to be applicable to a host of other applications dealing with RF communications. An important contribution to the scientific

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literature, Bandwidth-Efficient Digital Modulation with Application to Deep Space Communications * was commissioned by the JPL Deep Space Communications and Navigation System Center of Excellence * highlights many NASA-funded technical contributions pertaining to deep space communications systems * is a part of the prestigious Deep Space Communications and Navigation Series The Deep Space Communications and Navigation Series is authored by scientists and engineers with extensive experience in astronautics, communications, and related fields. It lays the foundation for innovation in the areas of deep space navigation and communications by disseminating state-of-the-art knowledge in key technologies.

Electronics Laboratory Primer S. Chand Publishing

This textbook covers the fundamental concepts of analog communications with a Q&A approach. It is a comprehensive compilation of numerical problems and solutions covering all the topics in analog communications. Richly illustrated with figures, this book covers the important topics of signals and systems, random variables and random processes, amplitude modulation, frequency modulation, pulse code modulation and noise in analog modulation. It has numerical questions and their solutions clearing the concepts of Fourier transform, Hilbert transform, modulation, synchronization, signal-to-noise ratio analysis and many more. All the solutions have step-by-step approach for easy understanding. This book will be of great interest to the students of electronics and electrical communications engineering.

This hands-on, laboratory driven textbook helps readers understand principles of digital

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signal processing (DSP) and basics of software-based digital communication, particularly software-defined networks (SDN) and software-defined radio (SDR). In the book only the most important concepts are presented. Each book chapter is an introduction to computer laboratory and is accompanied by complete laboratory exercises and ready-to-go Matlab programs with figures and comments (available at the book webpage and running also in GNU Octave 5.2 with free software packages), showing all or most details of relevant algorithms. Students are tasked to understand programs, modify them, and apply presented concepts to recorded real RF signal or simulated received signals, with modelled transmission condition and hardware imperfections. Teaching is done by showing examples and their modifications to different real-world telecommunication-like applications. The book consists of three parts: introduction to DSP (spectral analysis and digital filtering), introduction to DSP advanced topics (multi-rate, adaptive, model-based and multimedia - speech, audio, video - signal analysis and processing) and introduction to software-defined modern telecommunication systems (SDR technology, analog and digital modulations, single- and multi-carrier systems, channel estimation and correction as well as synchronization issues). Many real signals are processed in the book, in the first part - mainly speech and audio, while in the second part - mainly RF recordings taken from RTL-SDR USB stick and ADALM-PLUTO module, for example captured IQ data of VOR avionics signal, classical FM radio with RDS, digital DAB/DAB+ radio and 4G-LTE digital

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telephony. Additionally, modelling and simulation of some transmission scenarios are tested in software in the book, in particular TETRA, ADSL and 5G signals. Provides an introduction to digital signal processing and software-based digital communication; Presents a transition from digital signal processing to software-defined telecommunication; Features a suite of pedagogical materials including a laboratory test-bed and computer exercises/experiments .

This book is evolved from the experience of the author who taught all lab courses in his three decades of teaching in various universities in India. The objective of this lab manual is to provide information to undergraduate students to practice experiments in electronics laboratories. This book covers 118 experiments for linear/analog integrated circuits lab, communication engineering lab, power electronics lab, microwave lab and optical communication lab. The experiments described in this book enable the students to learn:

- Various analog integrated circuits and their functions
- Analog and digital communication techniques
- Power electronics circuits and their functions
- Microwave equipment and components
- Optical communication devices

This book is intended for the B.Tech students of Electronics and Communication Engineering, Electrical and Electronics Engineering, Biomedical Electronics, Instrumentation and Control, Computer Science, and Applied Electronics. It is designed not only for engineering students, but can also be used by BSc/MSc (Physics) and Diploma students.

KEY FEATURES

- Contains aim, components and equipment required, theory, circuit

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diagram, pin-outs of active devices, design, tables, graphs, alternate circuits, and troubleshooting techniques for each experiment • Includes viva voce and examination questions with their answers • Provides exposure on various devices TARGET AUDIENCE • B.Tech (Electronics and Communication Engineering, Electrical and Electronics Engineering, Biomedical Electronics, Instrumentation and Control, Computer Science, and Applied Electronics) • BSc/MSc (Physics) • Diploma (Engineering)

Designed for senior electrical engineering students, this textbook explores the theoretical concepts of digital signal processing and communication systems by presenting laboratory experiments using real-time DSP hardware. This new edition updates the experiments based on the TMS320C6713 (but can easily be adapted to other DSP boards). Each chapter begins with a presentation of the required theory and concludes with instructions for performing experiments to implement the theory. In the process of performing the experiments, students gain experience in working with software tools and equipment commonly used in industry.

This book provides an in-depth, integrated, and up-to-date exposition of the topic of signal decomposition techniques. Application areas of these techniques include speech and image processing, machine vision, information engineering, High-Definition Television, and telecommunications. The book will serve as the major reference for those entering the field, instructors teaching some or all of the

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topics in an advanced graduate course and researchers needing to consult an authoritative source. n The first book to give a unified and coherent exposition of multiresolutional signal decomposition techniques n Classroom tested textbook clearly describes the commonalities among three key methods-transform coding, and wavelet transforms n Gives comparative performance evaluations of many proposed techniques

An introductory, graduate-level look at modern communications in general and radio communications in particular. This seminal presentation of the applications of communication theory to signal and receiver design brings you valuable insights into the fundamental concepts underlying today's communications systems, especially wireless communications. Coverage includes: AM, FM Phase Modulation, PCM, fading, and diversity receivers. This is a classic reissue of a book published by McGraw Hill in 1966.

2018-19 Annual Rreport of LNJPIT, Loknayak Jai Prakash Institute of Technology, is a government engineering college in Bihar. It is managed by the Department of Science and Technology, Bihar. It is approved and recognized by the All India Council for Technical Education and is affiliated to the Aryabhata Knowledge University of Patna.

This systematically designed laboratory manual elucidates a number of

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techniques which help the students carry out various experiments in the field of digital signal processing, digital image processing, digital signal processor and digital communication through MATLAB® in a single volume. A step-wise discussion of the programming procedure using MATLAB® has been carried out in this book. The numerous programming examples for each digital signal processing lab, image processing lab, signal processor lab and digital communication lab have also been included. The book begins with an introductory chapter on MATLAB®, which will be very useful for a beginner. The concepts are explained with the aid of screenshots. Then it moves on to discuss the fundamental aspects in digital signal processing through MATLAB®, with a special emphasis given to the design of digital filters (FIR and IIR). Finally digital communication and image processing sections in the book help readers to understand the commonly used MATLAB® functions. At the end of this book, some basic experiments using DSP trainer kit have also been included. Audience This book is intended for the undergraduate students of electronics and communication engineering, electronics and instrumentation engineering, and instrumentation and control engineering for their laboratory courses in digital signal processing, image processing and digital communication. Key Features • Includes about 115 different experiments. • Contains several figures to reinforce

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the understanding of the techniques discussed. • Gives systematic way of doing experiments such as Aim, Theory, Programs, Sample inputs and outputs, Viva voce questions and Examination questions.

"Communication Electronics" is a comprehensive introduction to communication circuits and systems for students with a background in basic electronics. All of the chapters have been revised and updated to include the latest circuitry systems and applications.

AD-287 483Div. 8 U (TISTE/CAM) OTS price \$7.60 New Mexico U. Engineering Experiment Station, Albuquerque. DEMODULATION OF A SPECIAL AM-FM SIGNAL, by Donald W. Dearholt. Sep 60, 64p. incl. illus. 5 refs. (Technical rept. no. EE-34) (Contract DA 29-040-ORD-1238) Unclassified report DESCRIPTORS: *Signal generators, *Transducers, *Detection, *Modulation, Radiofrequency, Radio signals, Amplitude modulation, Tuning circuits, Pulse discriminators, Pulse modulation, Electronic circuits, Mathematical analysis, Theory, ntegaion, Waveform generators. The problem of demodulation of a signal obtained from a special generator and a special class of transducers is considered. The swept frequency range of the generator is chosen so that the resonant frequency of the transducer lies within this range for all anticipated values of the parameter to be measured. The generator output is applied to the transducer so that an amplitude peak occurs every time the generator frequency passes through the resonant frequency of the transducer. Demodulation is considered

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complete if correct relative values of the resonant frequency of the transducer are obtained. Possible sources of error in the peak marking circuit are considered, and ways of minimizing different types of error are discussed. Results obtained from an experimental peak marking circuit are compared with theoretical results. (Author). Well-written, handy and comprehensive, this laboratory experiments manual caters to the requirements of students of Electronics and Communication Engineering. Each experiment in the book provides essential theory, aim, scope, statement, equipment required, procedure, complete circuit diagram, tabulation, model graphs and results. A complete laboratory manual for students of electronics and communication engineering. Also useful for EEE, EIE, CSE, IT, ICE mechanical and polytechnic students.

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