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# Basic Electronics By Atul Prakashan

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**DESIRE**  
By Atul  
Prakashan 2021-07-01

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**SHEPPARD**

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**Digital  
Electronics**

Technical  
Publications  
The fast-  
emerging field  
of multimedia

communication involves the use of various media types - text, images, speech, audio and video in a wide range of subject areas. The book presents these subject areas in-depth that enables the reader to build up a thorough understanding of the technical issues associated with this rapidly evolving subject. The book begins with goals, objectives and characteristics of multimedia, multimedia

building blocks, multimedia architecture, distributed multimedia applications streaming technologies, multimedia database systems, multimedia authoring tools and applications. It describes image and audio fundamentals and their file formats, image compression and audio compression techniques. It also describes video signal formats, video transmission standards and

video file formats. It also explains types of animations, principles of animation, animation techniques and introduces OpenGL primitives, shadowing techniques and rendering. The book also covers advanced multimedia topics such as virtual reality, multimedia communication, multimedia networking, quality data transmission and multimedia in Android.

**Fundamental**

**s of  
Electrical  
Engineering  
and  
Electronics**

Technical Publications  
The book is written for an undergraduate course on digital electronics. The book provides basic concepts, procedures and several relevant examples to help the readers to understand the analysis and design of various digital circuits. It also introduces hardware description language, VHDL. The

book teaches you the logic gates, logic families, Boolean algebra, simplification of logic functions, analysis and design of combinational circuits using SSI and MSI circuits and analysis and design of the sequential circuits. This book provides in-depth information about multiplexers, demultiplexers, decoders, encoders, circuits for arithmetic operations, various types

of flip-flops, counters and registers. It also covers asynchronous sequential circuits, memories and programmable logic devices.

**Electric  
Power  
Systems**

Technical Publications  
This more-of-physics, less-of-math, insightful and comprehensive book simplifies computational fluid dynamics for readers with little knowledge or experience in heat transfer, fluid dynamics or numerical methods. The

novelty of this book lies in the simplification of the level of mathematics in CFD by presenting physical law (instead of the traditional differential equations) and discrete (independent of continuous) math-based algebraic formulations. Another distinguishing feature of this book is that it effectively links theory with computer program (code). This is done with pictorial as well as detailed

explanations of implementation of the numerical methodology. It also includes pedagogical aspects such as end-of-chapter problems and carefully designed examples to augment learning in CFD code-development, application and analysis. This book is a valuable resource for students in the fields of mechanical, chemical or aeronautical engineering. *Electronic*

*Circuits - i* Technical Publications The book is written for an undergraduate course on the 8085 and 8086 microprocessors and 8051 microcontroller. It provides comprehensive coverage of the hardware and software aspects of 8085 and 8086 microprocessors and 8051 microcontroller. The book uses plain and lucid language to explain each topic. A large number of programming examples is

the feature of this book. The book provides the logical method of describing the various complicated concepts and stepwise techniques for easy understanding, making the subject more interesting. The book is divided into three parts. The first part focuses on the 8085 microprocessor. It teaches you the 8085 architecture, pin description, bus organization, instruction set, addressing modes, instruction formats, Assembly Language Programming (ALP), instruction timing diagrams, interrupts and interfacing 8085 with support chips, memory and peripheral ICs - 8251, 8253, 8255, 8259 and 8279. It also explains the interfacing of 8085 with data converters - ADC and DAC- and introduces a temperature control system design. The second part focuses on the 8086 microprocessor. It teaches you the 8086 architecture, register organization, memory segmentation, interrupts, addressing modes, operating modes - minimum and maximum modes, interfacing 8086 with support chips, minimum and maximum mode 8086 systems and timings. The third part focuses on the 8051 microcontroller. It teaches you the 8051

architecture, pin description, instruction set, programming 8051 and interfacing 8051 with external memory. It explains timers/counters, serial port, interrupts of 8051 and their programming. It also describes the interfacing 8051 with keyboards, LCDs and LEDs and explains the control of servomotor, stepper motors and washing machine using 8051.

Microcontrollers Technical Publications The book is written for an undergraduate course on Hardware Description Languages. It provides comprehensive coverage of the VHDL (VHSIC-HDL, Very High Speed Integrated Circuit Hardware Description Language). It also introduces Verilog HDL. The book uses plain and lucid language to explain each topic. A large number of programming

examples is the feature of this book. The book explains the structure of VHDL module, operators, data objects and data types used in VHDL. It describes various modeling styles - Behavioral Modeling, Data Flow Modeling, Structural Modeling, Switch-Level Modeling and Mixed-Type Descriptions, with important concepts involved in them. It also introduces the structure of

the Verilog HDL module, operators, data types and compares VHDL and Verilog HDL.

### **Computer Graphics**

Technical Publications  
The book is written for an undergraduate course on the 8085 microprocessor and 8051 microcontroller. It provides comprehensive coverage of the hardware and software aspects of 8085 microprocessor and 8051 microcontroller. The book is divided into two parts. The

first part focuses on 8085 microprocessor. It teaches you the 8085 architecture, instruction set, Assembly Language Programming (ALP), interfacing 8085 with support chips, memory and peripheral ICs - 8251, 8253, 8255, 8259, 8237 and 8279. It also explains the interfacing of 8085 with data converters - ADC and DAC - and introduces a temperature control system and data

acquisition system design. The second part focuses on 8051 microcontroller. It teaches you the 8051 architecture, instruction set, programming 8051 with ALP and C and interfacing 8051 with external memory. It also explains timers/counters, serial port and interrupts of 8051 and their programming in ALP and C. It also covers the interfacing 8051 with data converters -

ADC and DAC, keyboards, LCDs, LEDs, stepper motors, servo motors and introduces the washing machine control system design.

### **Digital Design using Verilog HDL**

Technical Publications  
The book begins with bipolar and unipolar logic families. It teaches you the TTL and CMOS logic families. It provides in-depth information about analog to digital converters and digital to

analog converters. It also covers semiconductor memories and programmable logic devices. Then the book introduces microprocessors and microcontrollers. It introduces microprocessor with basic concepts, terminologies, phases in the execution process, evolution, block diagram, programming, instruction format, addressing modes, architectural advancements, selection criteria and

applications. It also explains the block diagram, various types and applications of the microcontrollers. Finally, the book incorporates a detailed discussion of display devices.  
*Digital Principles & System Design* John Wiley & Sons  
The book provides comprehensive coverage of the fundamental concepts of computer organization and architecture.



Its focus on real-world examples encourages students to understand how to apply essential organization and architecture concepts in the computing world. The book teaches you both the hardware and software aspects of the computer. It explains computer components and their functions, interconnection structures, bus structures, computer arithmetic, processor

organization, memory organization, I/O functions, I/O structures, processing unit organization, addressing modes, instructions, instruction pipelining, instruction-level parallelism, and superscalar processors. The case studies included in the book help readers to relate the learned computer fundamentals with the real-world processors. Electronic

Circuits - li  
 Technical Publications  
 The fast-emerging field of multimedia communications involves the use of various media types - text, images, speech, audio and video in a wide range of subject areas. The book presents these subject areas in - depth that enables the reader to build up a thorough understanding of the technical issues associated with this rapidly evolving subject. The

book begins with multimedia and animation, multimedia systems, elements of multimedia and animation and their use. It discusses the background of color theory, sketching and illustration, storyboarding and different tools for animation. It describes the process of multimedia project development. It discusses the requirement of human resources and their skill

levels, hardware and software tools, graphics, authoring tools and things involved in planning, costing, designing, producing, delivering, evaluating and testing multimedia projects. It also explains the various image file formats, the concept of morphing, types of animations, principles of animation, animation techniques, animation file formats, animation for

Web, animation tools for World Wide Web and professional development tools.  
*Indian National Bibliography*  
 S. Chand Publishing  
 Passive Circuit Components and Electron Ballistics  
 Passive circuit components :  
 Resistors :  
 Fixed and variable -  
 Tolerance -  
 Colour coding ;  
 Capacitors :  
 Fixed and variable -  
 Dissipation factor -  
 Characteristics and applications of various types

of capacitors;	deflection in a	Drift and
Inductors :	Cathode Ray	diffusion
Fixed and	Tube -	currents -
variable -	Principles and	Carrier life
Energy stored	applications of	time -
in a magnetic	CRO.Semicond	Continuity
field - Q factor	uctor Diodes	equation -
- Mutual	and Special	Theory of PN
coupled	DiodesSemico	junction diode
coils.Electron	nductor	- Energy band
ballistics :	diodes :	structure of
Charged	Classification	open circuited
particles -	of	PN junction -
Force, Field	semiconductor	Quantitative
intensity,	s -	theory of PN
potential and	Conductivity	diode currents
energy - Two	of	- Diode
dimensional	semiconductor	current
motion of	s - Carrier	equation -
electron -	concentration	Diode
Force in	in intrinsic	resistance -
magnetic field	semiconductor	Transition or
- Motion in a	- Mass - Action	space charge
magnetic field	law -	capacitance -
- Parallel and	Properties of	Diffusion
perpendicular	intrinsic	capacitance -
electric and	semiconductor	Effect of
magnetic	s - Variation in	temperature
fields -	semiconductor	of PN junction
Electrostatic	parameters	diodes -
deflection and	with	Junction diode
Magnetic	temperature -	switching

characteristics	Optocoupler.Bi	Characteristic
- Breakdown	polar Junction	Parameters of
in PN junction	Transistors	the JFET -
diodes - PN	and Field	Expression for
diode	Effect	saturation
applications -	TransistorsBip	drain current -
Clipper -	olar Junction	Slope of the
Clampers.Spe	Transistors :	transfer
cial diodes :	Construction -	characteristics
Zener diode -	Transistor	at IDSS -
Backward	biasing -	Comparison of
diode -	Operation of	JFET and BJT -
Varactor diode	NPN transistor	Applications of
- Step	- Operation of	JFET - Metal
recovery	PNP transistor	oxide
diode - Point-	- Types of	semiconductor
contact diode	configuration -	field effect
- Tunnel diode	Breakdown in	transistor
- PIN diodes -	transistors -	(MOSFET) -
Laser diode ;	Ebers-Moll	Enhancement
Photoconducti	model -	MOSFET -
ve sensors -	Transistor	Depletion
Photovoltaic	switching	MOSFET -
sensors -	times.Field	Comparison of
Photoemissive	Effect	MOSFET with
sensors - Light	Transistors :	JFET -
emitters -	Construction	Handling
Liquid Crystal	of N-channel	precautions
Display (LCD)	JFET -	for MOSFET -
- Nixie tube -	Operation of	Comparison of
Alphanumeric	N-channel	N-with P-
displays -	JFET -	channel

MOSFETs -	circuits.Metal	Intrinsic
Comparison of	Semiconducto	stand-off ratio.
N-with P-	r Contacts and	<i>Electronic</i>
Channel.Integr	Power Control	<i>Circuits-I</i>
ated Circuit	DevicesMetal	Technical
FabricationIntr	semiconductor	Publications
oduction to	contacts :	Diode
mass	Energy band	ApplicationsVo
technology -	diagram of	ltage
Manufacturing	metal	multiplier
process -	semiconductor	circuits :
Construction	junction -	Working and
of a bipolar	Schottky	comparison of
transistor -	diode and	voltage
Monolithic	ohmic	doubler,
diodes -	contacts -	tripler and
Integrated	GTO.Power	voltage
resistors -	control	quadrupler
Monolithic	devices :	configurations
capacitors -	PNPN diode	. Limitations of
Inductors -	(Shockley	voltage
Thin and thick	diode) - SCR -	multiplier
film	Thyristor	circuits. Effect
technology -	ratings -	of frequency
Definition of	LASCR (Light	on load
LSI, MSI, VLSI	Activated	regulation.Clip
circuits - VLSI	SCR) - TRIAC -	ping and
Design rules	DIAC -	clamping
and layout	Characteristic	circuits :
technique -	s and	Series and
Introduction to	equivalent	parallel forms
fast VLSI	circuit of UJT -	of clipping

circuits, Biased clipper, their operation and transfer characteristics . Clamping circuits.MOSFE T ApplicationsM OSFET in VLSI : V-I characteristic equation in terms of W/L ratio, MOSFET scaling and small geometry effects, MOSFET capacitances. Modeling MOS transistors using SPICE, CMOS inverter, Static characteristics - Noise margin, threshold voltage,	Layout and latch-up prevention, Other logic gates - NAND and NOR gates. Objective : To study Power MOSFET and Power BJT devices and their data sheet specifications. Power MOSFETConstr uction - Lateral double diffused MOSFET, VMOSFET. Drive requirements, Comparison with power BJT. One example of drive circuit for POWER MOSFET.Powe r BJTPower BJT	construction, Data sheet specifications, Thermal resistance, Second breakdown, Safe operating area (SOA), Thermal runaway, BJT as a switch in display and relay drive applications, Drive considerations , Anti saturation circuits, Comparison with POWER MOSFET.Large signal AF BJT amplifiersBloc k schematic of AF amplifier. Classes of power amplifiers - Class A, Class B, Class AB.
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<p>An overview and applications of Class C and Class D amplifiers. Class A with resistive load, Transformer coupled class A amplifier, Class B Push-pull, Class AB, Complementary symmetry and Quasi-complementary configurations . Efficiency analysis for Class A transformer coupled amplifier, Class B push-pull amplifiers. Comparison of efficiencies of other configurations . Distortions in</p>	<p>amplifiers, concept of Total Harmonic Distortion (THD).High frequency, small signal BJT amplifiersBehavior of transistor at high frequencies. Modified T equivalent circuit. High frequency hybrid CE amplifier model. CE short circuit current gains for T and hybrid models. Definitions and derivations for , and . Amplifier bandwidth</p>	<p>taking into account source and load resistances. Techniques to improve bandwidth. Single tuned, Double tuned and stagger tuned amplifiers. Unloaded and loaded Q. Effect of staggering on bandwidth (no derivations).Feedback amplifiers and oscillatorsConcept of feedback. Negative and positive feedback. Classification of amplifiers based on feedback topology.</p>
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(Voltage, Current, Transconductance and Transresistance amplifiers). Transfer gain with feedback. Advantages and disadvantages of negative feedback. Effect of feedback on input and output impedances and bandwidth of an amplifier. Analysis of one circuit for each feedback topology. Oscillators Oscillator startup mechanism, need for amplitude limiting. Study of following	oscillator circuits (using FET) - (Derivations not expected) - LC oscillators - General form of LC oscillator. Hartley oscillator, Colpitts oscillator, Clapp oscillator. Crystal oscillator, Crystal clock. Linear voltage regulators and voltage references Block schematic of linear regulators. Emitter follower regulator, Transistor series regulator and	its analysis for performance parameters. 3 terminal floating, dual and adjustable regulators. Method of boosting output current using external series pass transistor. Performance parameters - Load and Line regulation, Ripple rejection, Output resistance and efficiency. Protection circuits - Reverse polarity protection, over current, fold back current limiting, over voltage
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protections.  
 Important data sheet specifications of linear regulators.  
 Voltage references, their peculiarities and applications.  
Digital Logic Circuits using VHDL  
 Technical Publications  
 Number systems, Binary, Octal, Hexadecimal, Conversion methods.  
 Binary addition, Subtraction  
 1's complement method.  
 Concept of coding, BCD codes, 8421, EXCESS-3, Grey code, Codes with more than four bits, ASCII codes.  
 Error Detecting and Correcting Codes : Parity bits, Matrix representation of linear-block codes and its capabilities, Hamming code, Binary cyclic code, Burst code.  
 De-Morgan theorem, Canonical and standard forms, Dependency notation, Minimization of logic functions, Karnaugh maps upto 4 variables, SOP and POS forms, Don't care conditions, Quine MC-Clusky method upto 4 variables, Multiple output minimization.  
 Logic Families : TTL NAND gate, Specifications, Tristate TTL, Bus organised computer principle, ECL, MOS, CMOS families and their interfacing.  
 Combinational Logic : Code conversion, Arithmetic circuits, Half and full adder and subtractor, Binary serial and parallel

<p>adder, IC 7483, BCD adder, Excess-3 adder, Digital comparator.M ultiplexer, Demultiplexer, Encoder, Decoder and their applications, Design of ALU.Sequentia l Logic Circuits : S-R, Clocked S-R, JK and Master-Slave JK flip-flops, Flip-Flop conversion, Edge triggered flip- flops, Design of Algorithmic State Machines (ASM) for simple applications. Design of ripple and</p>	<p>synchronous counters, Shift register and pulse train generator, Pseudo Random Binary Sequencing (PRBS) generator.Ana lysis of clocked sequential circuits.Semic onductor Memories : RAM, ROM, PROM, EPROM, EEPROM, NVRAM, SRAM, DRAM; Concept of PLA, PAL. <u>Linear</u> <u>Integrated</u> <u>Circuits</u> Technical Publications The fundamentals</p>	<p>and implementatio n of digital electronics are essential to understanding the design and working of consumer/ind ustrial electronics, communicatio ns, embedded systems, computers, security and military equipment. Devices used in applications such as these are constantly decreasing in size and employing more complex technology. It is therefore essential for engineers and students to understand</p>
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the fundamentals, implementation and application principles of digital electronics, devices and integrated circuits. This is so that they can use the most appropriate and effective technique to suit their technical need. This book provides practical and comprehensive coverage of digital electronics, bringing together information on fundamental theory, operational

aspects and potential applications. With worked problems, examples, and review questions for each chapter, Digital Electronics includes: information on number systems, binary codes, digital arithmetic, logic gates and families, and Boolean algebra; an in-depth look at multiplexers, demultiplexers, devices for arithmetic operations, flip-flops and related devices,

counters and registers, and data conversion circuits; up-to-date coverage of recent application fields, such as programmable logic devices, microprocessors, microcontrollers, digital troubleshooting and digital instrumentation. A comprehensive, must-read book on digital electronics for senior undergraduate and graduate students of electrical, electronics and computer engineering,

and a valuable reference book for professionals and researchers. Microprocessors & Introduction to Microcontroller Technical Publications

This book begins with an introduction to Verilog HDL. It describes basic concepts in Verilog HDL, language constructs and conventions and modeling styles - gate-level modeling, data-flow level modeling, behavioral modeling and switch level modeling. It also describes sequential models, basic memory components, functional register, static machine coding and sequential synthesis. The last section of the book focuses on component testing and verification. It includes combinational circuits testing, sequential circuit testing, test bench techniques, design verification and assertion verification. **Basic Electronics Engineering**

Springer Nature Aims of the Book: The foremost and primary aim of the book is to meet the requirements of students pursuing following courses of study: 1. Diploma in Electronics and Communication Engineering (ECE)-3-year course offered by various Indian and foreign polytechnics and technical institutes like City and Guilds of London Institute (CGLI) .2. B.E. (Elect. &

Comm.)-4-year course offered by various Engineering Colleges. Efforts have been made to cover the papers: Electronics-I & II and Pulse and Digital Circuits. 3.B.Sc. (Elect.)-3-Year vocationalised course recently introduced by Approach.

**Introduction to Computational Fluid Dynamics**

Technical Publications  
The book presents comprehensive coverage of

Computer Graphics and Multimedia concepts in a simple, lucid and systematic way. It uses C programming language to implement various algorithms explained in the book. The book is divided into two parts. The first part focuses on a wide range of exciting topics such as illumination and colour models, shading algorithms, line, curves, circle and ellipse drawing

algorithms, polygon filling, 2D and 3D transformations, windowing and clipping, 3D object representation, 3D viewing, viewing pipeline, and visible surface detection algorithms. The second part focuses on multimedia basics, multimedia applications, multimedia system architecture, evolving technologies for multimedia, defining objects for multimedia systems, multimedia

data interface standards, multimedia databases, compression and decompression, data and file format standards, multimedia I/O technologies, digital voice and audio, video image and animation, full-motion video and storage and retrieval technologies. It also describes multimedia authoring and user interface, Hypermedia messaging, mobile messaging, integrated

multimedia message standards, integrated document management and distributed multimedia systems. Case Study : Blender graphics - Blender fundamentals, drawing basic shapes, modelling, shading and textures.

**Digital Electronics and Introduction to Microprocessors and Microcontrollers** Technical Publications Semiconductor Physics and

Materials Intrinsic and extrinsic semiconductor s, Conduction mechanism in extrinsic semiconductor s, Carrier concentrations , Drift and diffusion mechanisms, Drift and diffusion current densities, Excess carriers, Recombination process, Mean carrier lifetime, Conductivity, Mobility, Mass action law, Einstein relationship. Semiconductor materials used in optoelectronic

<p>devices and modern semiconductor devices and integrated circuits - GaAs, SiGe, GaAsP.Semiconductor Diodes A brief overview of following types of diodes, their peculiarities and applications Rectifier, Signal, Switching, Power, Tunnel, Shockley, Gunn, PIN.Semiconductor P-N Junction Diode : Open circuited step graded junction, Metallurgical junctions and</p>	<p>ohmic contacts, Depletion region, Barrier potential, Forward and reverse biased diode operation.V-I characteristic equation of diode (no derivation). Volt equivalent of temperature, Temperature dependence of V-I characteristics , DC load line. Forward and reverse dynamic resistance, Small signal and large signal diode models. Diode data sheet specifications - PIV,</p>	<p>IFMSurge, lav.Switching Diodes - Diode switching times, Junction capacitances.( No derivations).Field Effect Transistors An overview of different types of FETs viz. JFET, MOSFET, MESFET, Peculiarities of these types and their application areas.JFET : JFET construction, Symbol, Basic operation, V-I characteristics , Transfer characteristics ( Shockley's equation), Cut-off &amp; Pinch-off voltages,</p>
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Transconductance, Input resistance & Capacitance. Drain to source resistance. Universal JFET bias curve. Biasing arrangements for JFET - Biasing against device variation, Biasing for zero current drift. JFET as voltage controlled current source. JFET data sheet specifications - IDSS, VP, gm, rd, RDS or RD (ON). JFET Amplifiers : CS, CD, CG amplifiers. Their analysis using small	signal JFET model. MOSFETs An overview of following MOSFET types - D-MOSFET, E-MOSFET, Power MOSFET, n-MOS, p-MOS and CMOS devices. Handling precautions for CMOS devices. D and E-MOSFET characteristics and parameters, Non ideal voltage current characteristics viz. Finite output resistance, body effect, sub threshold conduction, Breakdown effects and	temperature effects. MOSFET biasing, Introduction to MOSFET as VLSI device. Bipolar Junction transistor An overview of different types of BJTs - Small signal and large signal low frequency types, Switching/RF, Heterojunction types. Peculiarities of these types and their application areas. BJT Biasing and Basic Amplifier Configurations : Need for biasing BJT, DC analysis of
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BJT circuits, Typical junction voltages for cut-off, Active and saturation regions, Voltage divider bias and its analysis for stability factors, Small signal-low frequency h- parameter model, Variation of h- parameters with operating point, Other small signal models, Derivations for CE configuration for $A_i$ , $R_i$ , $R_o$ , $A_{vs}$ , $A_{vs}$ interms of h- parameters, Comparison of performance	parameters with CB and CC configurations in tabular form. Need for multistage amplifiers and suitability of CE, CC and CB configurations in multistage amplifiers, Small signal and DC data sheet specifications for BJT. Concept of frequency response, Human ear response to audio frequencies, Significance of Octaves and Decades. The decibel unit. Square wave testing of amplifiers.	Miller's theorem. Effect of coupling, bypass, junction and stray capacitances on frequency response for BJT and FET amplifiers. Concept of dominant pole. N stage cascade amplifier, Band pass of cascaded stages (effect on frequency response). Concept of GBW. (No derivations). <b>ARM Controller</b> John Wiley & Sons This Book extensive pruning of the
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solved  
Examples in  
the  
text. Majority  
of the old  
examples  
have been  
replaced by  
questions set  
in the latest  
examination  
papers of  
different  
engineering  
colleges and  
technical  
institutions.  
Logic Design  
and Computer  
Organization  
Technical  
Publications  
The book  
covers all the  
aspects of  
theory,  
analysis, and  
design of  
Electronic  
Circuits for the  
undergraduat  
e course. It

provides all  
the essential  
information  
required to  
understand  
the operation  
and perform  
the analysis  
and design of  
a wide range  
of electronic  
circuits,  
including  
MOSFET as a  
switching and  
amplifier  
circuits,  
feedback  
amplifiers,  
oscillators,  
voltage  
regulators,  
operational  
amplifiers and  
its  
applications,  
DAC, ADC,  
and Phase-  
Locked Loop.  
The book is  
divided into  
four parts. The

first part  
focuses on the  
fundamental  
concepts of  
MOSFET,  
MOSFET  
construction,  
characteristics  
, and circuits -  
as a switch, as  
a  
resistor/diode,  
as an  
amplifier, and  
current sink  
and source  
circuits. The  
second part  
focuses on the  
analysis of  
voltage-series  
and current-  
series  
feedback  
amplifiers. It  
also explains  
the  
Barkhausen  
criterion for  
oscillation and  
incorporates  
the detailed

analysis of Wien bridge and phase-shift oscillators. The third part is dedicated to the basics of op-amp and a discussion of a variety of its applications. The fourth part focuses on the V to I and I to V Converters, DAC and ADC, and Phase-Locked Loop. The book uses straightforward and lucid language to explain each topic. The book provides the logical method of describing the various complicated

issues and stepwise methods to make understanding easy. The variety of solved examples is the feature of this book. The book explains the subject's philosophy, which makes understanding the concepts evident and makes the subject more interesting. **Microprocessor and Interfacing**  
S. Chand Publishing  
The book is written for an undergraduate course on the 8051 and MSP430

microcontrollers. It provides comprehensive coverage of the hardware and software aspects of 8051 and MSP430 microcontrollers. The book is divided into two parts. The first part focuses on 8051 microcontroller. It teaches you the 8051 architecture, instruction set, programming 8051 and interfacing 8051 with external memory. It explains timers/counters, serial port, interrupts of

8051 and their programming. It also describes the interfacing 8051 with data converters - ADC and DAC, keyboards, LCDs, LEDs, stepper motors and DC motor interfacing. The second part focuses

on MSP430 microcontroller. It teaches you the low power features, architecture, instruction set, programming, digital I/O and on-chip peripherals of MSP430. It describes how to use code

composer studio for assembly and C programming. It also describes the interfacing MSP430 with external memory, LCDs, LED modules, wired and wireless sensor networks.