

## Ec6404 Linear Integrated Circuits Fmcet

"In this fifth edition, we not only have kept the standard 741 op amp but also have shown many circuits with newer, readily available op amps because these have largely overcome the dc and ac limitations of the older types. We preserved or objective of simplifying the process of learning about applications involving signal conditioning, signal generation, filters, instrumentation, and control circuits. But we have oriented this fifth edition to reflect the evolution of analog circuits into those applications whose purpose is to condition signals from transducers or other sources into form suitable for presentation to a microcontroller or computer. In addition, we have added examples of circuit simulation using PSpice throughout this edition."--Introduction.

Op-Amps And Linear Integrated Circuits,3/e

*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. The book uses plain and lucid language to explain each topic. A large number of design examples with commercially available SSI and MSI chips is the feature of this book. The book begins with the CMOS, TTL and ECL logic families. It teaches you the analysis and design of combinational and sequential circuits using SSI and MSI chips. It provides in-depth information about multiplexers, de-multiplexers, decoders, encoders, priority encoders, devices for arithmetic operations, multipliers, tri-state devices, comparators, parity circuits, various types of flip-flops, counters and registers. It also covers semiconductor memories and programmable logic devices.*

Linear Integrated Circuits And Applications

Operational Amplifiers & Linear Integrated Circuits

**Differential Amplifiers**Analysis of differential amplifier, common mode and differential mode gains, transfer characteristics, CMRR, I/P and O/P impedances, high performance amplifiers using current source bias and current mirror connection.**Drift Problem**Thermal drift, input error signals and their compensation in differential amplifier.**Operational Amplifier**Ideal op-amp characteristics, cascading of differential amplifier. I/P, O/P stages and level translators, multistage op-amps, frequency response and stability. Frequency and phase compensation techniques. Some commercial op-amp parameters, features (IC 741, MC 1530).**Op-amp Applications**Inverting and non-inverting, differential and bridge amplifiers, summer, integrator, differentiator. V to I and I to V converters, op-amp feedback limiters using diodes, zener diodes, log and antilog amplifiers, analog multipliers, dividers, sample and hold circuits. Peak detectors, precision rectifiers, instrumentation amplifier, monostable and astable multivibrators, comparators-Schmitt trigger using op-amp.**Active Filters**First and second order Butterworth filters, design and its response (LP, HP, BP, BE, Narrow band, all pass filters).**Timers**Basic timer circuit 555 timer used as astable and monostable multivibrator.**Data Converters and Data Acquisition System**D/A converters, basic D/A converter, weighted binary type, ladder R-2R D/A converters, performance parameters and source of errors.A/D ConvertersBasic V/F converter, V/T converter, single slope and dual slope converter. A/D converter using D/A converter, counter ramp, continuous counter ramp, successive approximation, flash converter.**Communication Amplifications**Cascade amplifiers MC1550 for video, RF and amplitude modulation, AGC application, PLL, brief study of PLL system, applications of PLL for AM, FM detection, FSK decoder, frequency synthesis using commercial PLL (IC 565).**Voltage Regulators**Analysis and design of series and shunt regulators using DC amplifiers, some commercial voltage regulators (MC 78XX series, IC 723), high current negative voltage with foldback limiting concepts, switching regulators - basic concepts and applications.

**Theory and Design**

**Analog Electronic Circuits**

Featuring an extensive 40 page tutorial introduction, this carefully compiled anthology of 65 of the most important papers on phase-locked loops and clock recovery circuits brings you comprehensive coverage of the field-all in one self-contained volume. You'll gain an understanding of the analysis, design, simulation, and implementation of phase-locked loops and clock recovery circuits in CMOS and bipolar technologies along with valuable insights into the issues and trade-offs associated with phase locked systems for high speed, low power, and low noise.

Digital IC Applications

Linear Ic Applications

*Miller and Childers have focused on creating a clear presentation of foundational concepts with specific applications to signal processing and communications, clearly the two areas of most interest to students and instructors in this course. It is aimed at graduate students as well as practicing engineers, and includes unique chapters on narrowband random processes and simulation techniques. The appendices provide a refresher in such areas as linear algebra, set theory, random variables, and more. Probability and Random Processes also includes applications in digital communications, information theory, coding theory, image processing, speech analysis, synthesis and recognition, and other fields. \* Exceptional exposition and numerous worked out problems make the book extremely readable and accessible \* The authors connect the applications discussed in class to the textbook \* The new edition contains more real world signal processing and communications applications \* Includes an entire chapter devoted to simulation techniques*

**Design with Operational Amplifiers and Analog Integrated Circuits**

**Monolithic Phase-Locked Loops and Clock Recovery Circuits**

Op-Amps And Linear Integrated Circuits.3/eDigital IC ApplicationsTechnical Publications

Probability and Random Processes

With Applications to Signal Processing and Communications

*Integrated Circuits*Classification, chip size and circuit complexity, basic information of Op-amp, ideal and practical Op-amp, internal circuits, Op-amp characteristics DC and AC characteristics, 741 Op-amp and its features.*Op-amp Applications*Basic application of Op-amp, instrumentation amplifier, ac amplifier, V to I and I to V converters, Op-amp circuits using diodes, sample & hold circuits, log & antilog amplifiers, multipliers and dividers, differentiators and integrators, comparators, Schmitt trigger, multivibrators, introduction to voltage regulators, festures of 723.*Active Filters & Oscillators and Waveform Generators*Butterworth filters-1st order, 2nd order LPF, HPF filters, band pass, band reject and all pass filters. Oscillator types and principle of operation-RC, Wien and quadrature type, waveform generators-triangular, swatooth, square wave and VCO.*Timers & Phase Locked Loops*555 timer, functional diagram, monostable and astable operations and applications, Schmitt trigger. PLL-introduction, block schematic, principles and description of individual blocks, 565 PLL, Applications of PLL-frequency multiplication, frequency translation, AM, FM & FSK demodulators.D to A & A to D ConvertersBasic DAC techniques, weighted resistor DAC, R-2R ladder DAC, inverted R-2R DAC, and IC 1408 DAC, different types of ADCs-parallel comparator type ADC, counter type ADC, successive approximation ADC and dual slope ADC. DAC and ADC specifications.

*Franco's "Design with Operational Amplifiers and Analog Integrated Circuits, 4e" combines theory with real-life applications to deliver a straightforward look at analog design principles and techniques. An emphasis on the physical picture helps the student develop the intuition and practical insight that are the keys to making sound design decisions.is The book is intended for a design-oriented course in applications with operational amplifiers and analog ICs. It also serves as a comprehensive reference for practicing engineers. This new edition includes enhanced pedagogy (additional problems, more in-depth coverage of negative feedback, more effective layout), updated technology (current-feedback and folded-cascode amplifiers, and low-voltage amplifiers), and increased topical coverage (current-feedback amplifiers, switching regulators and phase-locked loops).*

**Diode Circuits**Diode resistance, Diode equivalent circuits, Transition and diffusion capacitance, Reverse recovery time, Load line analysis, Rectifiers, Clippers and clampers.**Transistor Biasing**Operating point, Fixed bias circuits, Emitter stabilized biased circuits, Voltage divider biased, D.C. bias with voltage feedback, Miscellaneous bias configurations, Design operations, Transistor switching networks, PNP transistors, Bias stabilization.**Transistor at Low Frequencies**BJT transistor modeling, Hybrid equivalent model, CE fixed bias configuration, Voltage divider bias, Emitter follower, CB configuration, Collector feedback configuration, Hybrid equivalent model.**Transistor Frequency Response**General frequency considerations, Low frequency response, Miller effect capacitance, High frequency response, Multistage frequency effects.**General Amplifiers**Cascade connections, Cascode connections, Darlington connections.**Feedback Amplifier** Feedback concept, Feedback connections type, Practical feedback circuits.**Power Amplifiers**Definitions and amplifier types, Series ted class A amplifier, Transformer coupled class A amplifiers, Class B amplifier operations, Class B amplifier circuits, Amplifier distortions.**Oscillators**Oscillator operation, Phase shift oscillator, Wienbridge oscillator, Tuned oscillator circuits., Crystal oscillator.**FET Amplifiers**FET small signal model, Biasing of FET, Common drain common gate configurations, MOSFETs, FET amplifier networks.