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# Microwave Engineering Gupta

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Microwave Engineering  
Microwave Integrated Circuit Components Design through MATLAB®  
Microwave and Radar Engineering  
MICROWAVE ENGINEERING  
Microwave Engineering of Nanomaterials  
Microwave Engineering, 3e  
Fundamentals and Applications  
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Microstrip Lines and Slotlines, Third Edition  
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MICROWAVE DEVICES AND CIRCUIT DESIGN  
Microwave and RF Design of Wireless Systems  
Microwaves  
With Laboratory Manual  
Nonlinear RF Circuits and Nonlinear Vector Network Analyzers  
Concepts and Fundamentals  
Microstrip Lines and Slotlines  
Microwave Integrated Circuits  
Interactive Measurement and Design Techniques  
Microwave Solid State Circuit Design  
FUNDAMENTALS OF MICROWAVE ENGINEERING  
Neural Networks for RF and Microwave Design  
Handbook of Research on Advanced Trends in Microwave and Communication  
Engineering  
Techniques, Management, and Energy Conservation

## **MARKS JAMARCUS**

### **Microwave Engineering**

New Age International  
 With the increased use of mobile phones and computer wireless techniques, a need has developed for a book which provides students and industry with expertise in radio and microwave engineering. This important text has been written with these aims in mind. \*Provides a comprehensive course in radio and microwave engineering \*Includes CD-ROM, containing the CAD package PUFF 2.1 for construction and evaluation of circuits; and a comprehensive section on practical aspects of design \*Written by an experienced author, in a clear and easy-to-follow style \*Contains a variety of examples and self-test questions with model answers The material covers transmission lines, scattering parameters, couplers, amplifiers, oscillators and phase-locked loops in a novel way by introducing examples from daily life prior to the introduction of the theory. Microwave tools such as Smith charts, scattering parameters and signal flow diagrams are dealt with thoroughly and are

fully integrated in the numerous examples throughout the text and with PUFF. High Frequency and Microwave Engineering is intended as an advanced undergraduate text for students of electrical and communication engineering, and is also eminently suitable for self-study and as a manual for those in the industry wishing to update their engineering skills. Provides a comprehensive course in radio and microwave engineering Contains many examples and self-test questions with model answers  
*Microwave Integrated Circuit Components Design through MATLAB®*  
 PHI Learning Pvt. Ltd.  
 Be better prepared to meet design challenges with the latest design and analysis data available on planar microwave transmission structures including microstrip lines, slotlines, and coplanar waveguides. Four expert authors offer you today's most comprehensive information on transmission structures used in hybrid and monolithic circuits at microwave and mm-wave frequencies.  
*Microwave and Radar*

*Engineering New Age International*  
 Using microwaves to treat metal-based materials is rapidly emerging as an energy-efficient tool to interact with metals for a number of processes such as sintering, melting, brazing, carburizing and annealing. Microwaves can sinter a wide variety of metal compacts with comparable or enhanced end properties, while at the same time delivering tremendous energy savings over conventional sintering. Microwave processes are therefore gaining increasing attention and adoption in both academia and industry. Gupta and Wong have written this comprehensive text to introduce readers to the world of microwaves and the interaction of microwaves with metals and metals-based formulations. The authors have combined numerous research results from a wide range of sources alongside their own work in the field. Also included are overviews of microwave heating of other non-metal materials and the equipment used for microwave-assisted metallurgy. With microwave techniques poised for widespread adoption, Microwaves and

Metals is an essential text for all metallurgists and materials engineers. Provides a thorough grounding in microwave fundamentals and their application to metals processing. Informs readers of the latest developments in the field. Presents a convenient single source for all aspects of microwave processing of metals and materials. Contains liberal illustration to compare and benchmark research results. Introduces all the necessary equipment, preparing readers for real-world practice. *Microwaves and Metals* is ideal for a post-graduate or advanced undergraduate course in materials science or metallurgy. Materials and metallurgical engineers in industry, who are keen on cheaper, faster techniques, will also benefit from this book.

### **MICROWAVE ENGINEERING**

PHI Learning Pvt. Ltd. This is a textbook for upper undergraduate and graduate courses on microwave engineering, written in a student-friendly manner with many diagrams and illustrations. It works towards developing a foundation for further study and research in the

field. The book begins with a brief history of microwaves and introduction to core concepts of EM waves and wave guides. It covers equipment and concepts involved in the study and measurement of microwaves. The book also discusses microwave propagation in space, microwave antennae, and all aspects of RADAR. The book provides core pedagogy with chapter objectives, summaries, solved examples, and end-of-chapter exercises. The book also includes a bonus chapter which serves as a lab manual with 15 simple experiments detailed with proper circuits, precautions, sample readings, and quiz/viva questions for each experiment. This book will be useful to instructors and students alike.

*Microwave Engineering of Nanomaterials* McGraw-Hill Education

This book presents the basic principles, characteristics and applications of commonly used microwave devices used in the design of microwave systems. The book begins with a brief overview of the field of microwave engineering and then provides a thorough review of two

prerequisite topics in electromagnetics, that is, electromagnetic field theory and transmission lines, so essential to know before analysing and designing microwave systems. The book presents the full spectrum of both passive and active microwave components. Hollow pipe waveguides are thoroughly analysed with respect to their field components and other important characteristics such as bandwidth, dispersive nature, various impedances, and attenuation parameters. The basic principles of various types of microwave junctions used for power division, addition, and in measurement systems, such as tees, directional-couplers, circulators, gyrators, etc. are explained, along with their scattering parameters required for the analysis of microwave circuits. The text also presents a comprehensive analytical treatment of microwave tubes in common use, such as klystrons, magnetrons, TWTs, and solid state sources such as Gunn diodes, IMPATT diodes, funnel diodes and PIN diodes, etc. Finally, the book describes the laboratory procedures for

measurements of various parameters of circuits working at microwave frequencies. The book contains an instructional framework at the end of each chapter composed of questions, problems, and objective type questions to enable students to gain skills in applying the principles and techniques learned in the text. The book is appropriate for a course in Microwave Engineering at the level of both undergraduate and postgraduate students of Electronics and Communication Engineering.

**Microwave Engineering, 3e** Elsevier "Microwave engineering is the study of microwave frequencies and their interactions with circuits, components and systems. Internationally, this is an extremely active area of research. Das - Microwave Engineering, 3e is an enlarged and updated version of this popular study material. In keeping with their traditional style, the authors have taken care to ensure that the user experience is of the highest standards and for the same the content is now more modular, presentation simpler and all relevant information is available within the book.

Since its last release, the world of microwave has undergone unanimous changes in technology and all of these have been captured in this revised edition. New to this edition Inclusion of newer technologies such as MESFET, HMT etc Updated with newest technologies - Gunn diodes, IMPATT etc Application oriented approach - expanded coverage on Radar *Fundamentals and Applications* Springer David Pozar, author of Microwave Engineering, Second Edition, has written a new text that introduces students to the field of wireless communications. This text offers a quantitative and, design-oriented presentation of the analog RF aspects of modern wireless telecommunications and data transmission systems from the antenna to the baseband level. Other topics include noise, intermodulation, dynamic range, system aspects of antennas and filter design. This unique text takes an integrated approach to topics usually offered in a variety of separate courses on topics such as antennas and propagation, microwave systems and circuits, and

communication systems. This approach allows for a complete presentation of wireless telecommunications systems designs. The author's goal with this text is for the student to be able to analyze a complete radio system from the transmitter through the receiver front-end, and quantitatively evaluate factors. Suitable for a one-semester course, at the senior or first year graduate level. Note certain sections have been denoted as advanced topics, suitable for graduate level courses. High Frequency and Microwave Engineering PHI Learning Pvt. Ltd. The use of microwaves has gradually democratized itself in several scientific areas and is now a common methodology in domains as different as chemistry, protein digestion, mining, and metallurgy. Materials chemistry is one field where microwave irradiation technologies are being studied. In recent years, development of nanotechnologies has increased the interest of materials scientists in these new technologies. Microwave methodologies

are now routinely used in several areas of materials science, and new advances are ongoing. This book presents recent improvements in microwave engineering of materials and nanomaterials, interactions of microwave chemistry with materials, and advances in microwave technologies in several domains such as polymer synthesis and modification, processing of various materials (ceramics, glasses, metallic alloys, zeolites), and synthesis and functionalization of diverse nanomaterials (carbon nanotubes, MOF semiconductors, inorganic nanoparticles). The book will be of interest to all students and researchers in materials science and nanosciences who want to discover or increase their knowledge of microwave technology.

#### Analysis and Design of Integrated Circuit-Antenna

Modules Newnes

Provides detailed coverage of passive and active RF and microwave circuit design. Discusses the practical aspects of microwave circuits including fabrication technologies. Includes a treatment of heterostructure and wide-band gap devices.

Examines compact and low cost circuit design methodologies.

*Microwave Engineering*  
CRC Press

This textbook presents a unified treatment of theory, analysis and design of microwave devices and circuits. It is designed to address the needs of undergraduate students of electronics and communication engineering for a course in microwave engineering as well as those of the students pursuing M.Sc. courses in electronics science. The main objective is to provide students with a thorough understanding of microwave devices and circuits, and to acquaint them with some of the methods used in circuit analysis and design. Several types of planar transmission lines such as stripline, microstrip, slot line and a few other structures have been explained. The important concepts of scattering matrix and Smith chart related to design problems have been discussed in detail. The performance and geometry of microwave transistors-both bipolar and field effect-have been analysed. Microwave passive components such as couplers, power

dividers, attenuators, phase shifters and circulators have been comprehensively dealt with. Finally, the analysis and design aspects of microwave transistor amplifiers and oscillators are presented using the scattering parameters technique. Numerous solved problems and chapter-end questions are included for practice and reinforcement of the concepts.

**Microwave, Radar & RF Engineering** Cambridge University Press

It extensively covers the subject and is expected to serve as a basic text for the students of electronics and communication engineering, electrical engineering and electronics engineering, and covers the syllabus of courses for BE, BTech, AMIE, IETE, MSc, and polytechnics. Salient Features A comprehensive and an easy-to-read text to provide a detailed coverage of microwave fundamentals, devices and circuits. Covers the text in nine chapters and appendices. Each chapter is supplemented with elaborate illustrations, tables, solved and unsolved problems, and MCQs. An exhaustive set of solved problems in each chapter to help

students aspiring to appear in the examinations like GATE, PSUs and UPSC. Useful for BE, BTech, AMIE, IETE, MSc, and polytechnic students of ECE, and electrical engineering and also for self-study by engineers.

*INTRODUCTION TO MICROWAVE*

*ENGINEERING* Anshan Pub  
This Book Has Been Written Strictly According To The Latest Syllabus Prescribed By U.P.

Technical University, Lucknow For Undergraduate Students Of Electronics & Communication Engineering. Its First Chapter Discusses The Microwave Propagation Through Waveguides. The Second Chapter Describes Microwave Cavity Resonators. Third Chapter Deals With Microwave Components. Chapter Four Explains Various Microwave Measurements. The Chapter Five Discusses Limitations Of Conventional Active Devices At Microwave Frequencies And Introduces Various Microwave Tubes And Their Classification. Chapter Six Is Divided Into Three 6A, 6B & 6C And Discusses O- Type (6A, 6B) And M-Type (6C)

Tubes. Microwave Semiconductor Devices Have Been Discussed In Chapters Seven To Nine. Microwaves And Their Applications Are Described In An Introduction. Authors Have Taken Special Care In Keeping A Balance Between Mathematical And Physical Approach. Large Number Of Illustrative Diagrams Have Been Incorporated. A Good Number Of Solved Problems, Picture From University Examination Papers, Have Been Included For Reinforcing The Key Concepts. Microstrip Lines and Slotlines, Third Edition Springer

Detailing the active and passive aspects of microwaves, Microwave Engineering: Concepts and Fundamentals covers everything from wave propagation to reflection and refraction, guided waves, and transmission lines, providing a comprehensive understanding of the underlying principles at the core of microwave engineering. This encyclopedic text not only encompasses nearly all facets of microwave engineering, but also gives all topics—including microwave generation, measurement, and

processing—equal emphasis. Packed with illustrations to aid in comprehension, the book: Describes the mathematical theory of waveguides and ferrite devices, devoting an entire chapter to the Smith chart and its applications Discusses different types of microwave components, antennas, tubes, transistors, diodes, and parametric devices Examines various attributes of cavity resonators, semiconductor and RF/microwave devices, and microwave integrated circuits Addresses scattering parameters and their properties, as well as planar structures including striplines and microstrips Considers the limitations of conventional tubes, behavior of charged particles in different fields, and the concept of velocity modulation Based on the author's own class notes, Microwave Engineering: Concepts and Fundamentals consists of 16 chapters featuring homework problems, references, and numerical examples. PowerPoint® slides and MATLAB®-based solutions are available with qualifying course adoption.

*Printed Antennas* Springer Science & Business Media CD-ROM contains: PUFF 2.1 for construction and evaluation of circuits.

**Theory and Design** John Wiley & Sons

MICROWAVE INTEGRATED CIRCUIT COMPONENTS DESIGN THROUGH

MATLAB® This book teaches the student

community microwave integrated circuit

component design through MATLAB®,

helping the reader to become conversant in

using codes and, thereafter, commercial

software for verification purposes only. Microwave

circuit theory and its comparisons,

transmission line networks, S-parameters,

ABCD parameters, basic design parameters of

planar transmission lines (striplines, microstrips,

slot lines, coplanar waveguides, finlines),

filter theory, Smith chart, inverted Smith chart,

stability circles, noise figure circles and

microwave components, are thoroughly explained

in the book. The chapters are planned in such a way

that readers get a thorough understanding

to ensure expertise in design. Aimed at senior

undergraduates, graduates and

researchers in electrical engineering, electromagnetics, microwave circuit design and communications

engineering, this book: • Explains basic tools for

design and analysis of microwave circuits such

as the Smith chart and network parameters •

Gives the advantage of realizing the output

without wiring the circuit by simulating through

MATLAB code • Compares distributed theory with

network theory • Includes microwave components,

filters and amplifiers S. Raghavan was a Senior

Professor (HAG) in the Department of Electronics

and Communication Engineering, National

Institute of Technology (NIT), Trichy, India and

has 39 years of teaching and research experience

at the Institute. His interests include:

microwave integrated circuits, RF MEMS, Bio

MEMS, metamaterial, frequency selective

surfaces (FSS), substrate integrated waveguides

(SIW), biomedical engineering and

microwave engineering. He has established state-

of-the-art MICs and microwave research

laboratories at NIT, Trichy with funding from the

Indian government. He is

a Fellow/Senior Member in more than 24 professional

societies including: IEEE (MTT, EMBS, APS), IETE,

IEI, CSI, TSI, ISSS, ILA and ISOI. He is twice a

recipient of the Best Teacher Award, and has

received the Life Time Achievement Award,

Distinguished Professor of Microwave Integrated

Circuit Award and Best Researcher Award.

**Microwave Integrated Circuits** Artech House

Microwaves and Metals John Wiley & Sons

Microwave Engineering Wiley-Interscience

Microwave Devices, Circuits and Subsystems

for Communications Engineering provides a

detailed treatment of the common microwave

elements found in modern microwave

communications systems. The treatment is thorough

without being unnecessarily mathematical. The

emphasis is on acquiring a conceptual

understanding of the techniques and

technologies discussed and the practical design

criteria required to apply these in real engineering

situations. Key topics addressed include:

Microwave diode and transistor equivalent

circuits Microwave

transmission line technologies and microstrip design Network methods and s-parameter measurements Smith chart and related design techniques Broadband and low-noise amplifier design Mixer theory and design Microwave filter design Oscillators, synthesisers and phase locked loops Each chapter is written by specialists in their field and the whole is edited by experience authors whose expertise spans the fields of communications systems engineering and microwave circuit design. Microwave Devices, Circuits and Subsystems for Communications Engineering is suitable for senior electrical, electronic or telecommunications engineering undergraduate students, first year postgraduate students and experienced engineers seeking a conversion or refresher text. Includes a companion website featuring: Solutions to selected problems Electronic versions of the figures Sample chapter [Microstrip Lines and Slotlines](#) CBS Publishers & Distributors Private Limited This book presents the latest developments in

semiconducting materials and devices, providing up-to-date information on the science, processes, and applications in the field. A wide range of topics are covered, including optoelectronic devices, metal-semiconductor junctions, heterojunctions, MISFETs, LEDs, semiconductor lasers, photodiodes, switching diodes, tunnel diodes, Gunn diodes, solar cells, varactor diodes, IMPATT diodes, and advanced semiconductors. Detailed attention is paid to advanced and futuristic materials. In addition, clear explanations are provided of, for example, electron theories, high-field effects, the Hall effect, transit-time effects, drift and diffusion, breakdown mechanisms, equilibrium and transient conditions, switching, and biasing. The book is designed to meet the needs of undergraduate engineering students and will also be very useful for postgraduate students; it will assist in preparation for examinations at colleges and universities and for other examinations in engineering. Practice questions are therefore presented in both essay and multiple choice format, and many solved

examples and unsolved problems are included. *Advanced Semiconducting Materials and Devices* Wiley-Interscience Due to the unprecedented growth in wireless applications over the past decade, development of low-cost solutions for RF and microwave communication systems has become of great importance. This practical new book is the first comprehensive treatment of lumped elements, which are playing a critical role in the development of the circuits that make these cost-effective systems possible. The books offers you an in-depth understanding of the different types of RF and microwave circuit elements, including inductors, capacitors, resistors, transformers, via holes, airbridges, and crossovers. [Microwaves : Introduction To Circuits, Devices And Antennas](#) Artech House Publishers This Book Exhaustively Explains The Fundamental Physical And Theoretical Principles Underlying Microwave And Millimeter Wave Active Devices. Both Vacuum And Solid State Devices Are Suitably Discussed. The Book Begins By Highlighting

The Applications Of Microwaves And Various Types Of Devices. It Then Explains Vacuum Devices Including Gyrodevices And Other High Power Sources. Various Two And Three Terminal Solid State

Devices Are Then Discussed. These Include Hbts, Hfets And Rtds. The Text Is Amply Illustrated Through A Large Number Of Suitable Diagrams And Worked Out Examples. Practice Problems, Review Questions And Extensive

References Are Also Given At The End Of Each Chapter. The Book Would Serve As An Exhaustive Text For Both Undergraduate And Postgraduate Students Of Physics And Electronics.

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- [The Courage To Be Free: Florida's Blueprint For America's Revival By Ron Desantis](#)
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- [Things We Never Got Over \(knockemout\)](#)
- [Chicka Chicka Boom Boom \(board Book\)](#)
- [Twisted Lies \(twisted, 4\) By Ana Huang](#)
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