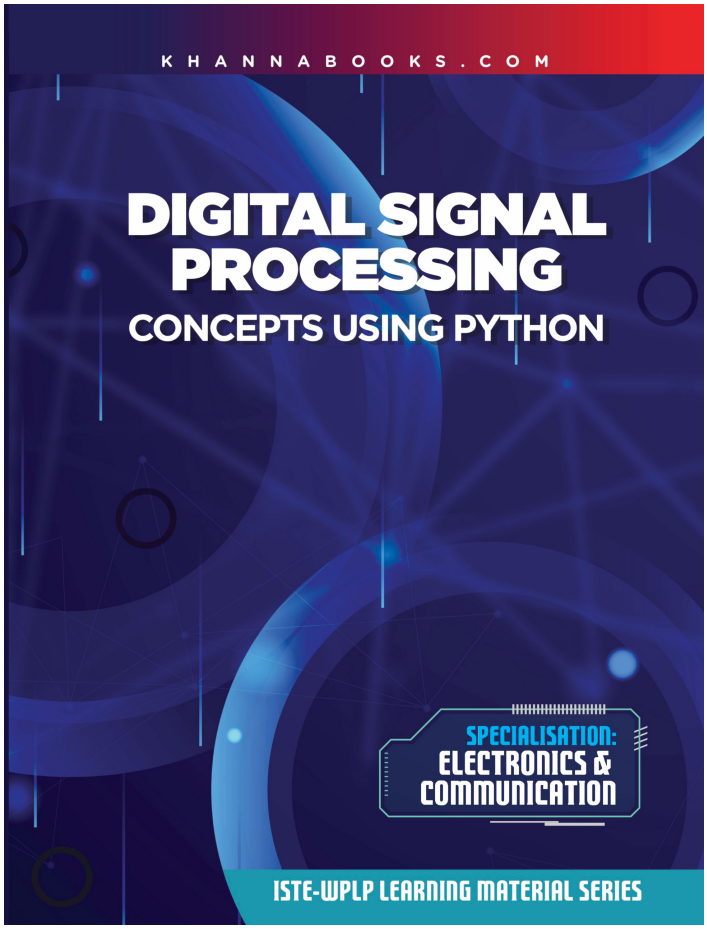

Digital Signal Processing Concepts Using Python

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Product Description

In this book, we have addressed various concepts in the typical Under Graduate course on, 'Digital Signal Processing'. The focus is to have a quick overview of the intended concept. This book is not a replacement to the prescribed text book in the curriculum. However, through the examples illustrated, it helps comprehend the concept. In addition, every Chapter of the book is accompanied by the link to the Python code is developed on the Goggle Colaboratory and hence is an Open source programming environment. No prior knowledge of Python is essential; however, and experience in any programming language will prove useful. The programming approach is to be able to develop the code for the concept from the mathematical equation and avoid the use of in-built functions. We would like to add that, we are using Python, purely to help comprehend the signal processing concept and not develop and efficient Python code. Experienced programmers may build alternate and efficient code.The motivation for coming out with this compilation, is because, students are usually introduced to the required pre-requisitions in earlier courses. For example, the 'Engineering Mathematics', course is likely to have introduced Calculus (integration, differential equation, difference equation), Laplace Transform, Fourier series, Fourier Transform, Z-Transform. The courses on 'Analog Electronic Circuits and 'Network Analysis', is likely to have introduced basic electronic circuits including resistors, capacitors, inductors and Operational amplifiers, that require the need to obtain the transfer function, the response to a given output. The student is usually introduced to another independent programming language (C/C++/ Python/Matlab /Sci-lab/ R programming/any other), where the emphasis is on the syntax of the language. In this Book, we provide a brief introduction to every pre-requisite; explain the concept, together with few examples for every concept. In addition, wherever applicable, different methods of arriving at the given solution are also included. The concept of Digital Signal Processing is complete, even without any reference to Python. The reference to Python is purely for students to explore further.

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Dr.B Kanmani, obtained her Bachelors in Electronics and Communication Engineering from Nagarujuna University in 1987, M. Tech. in Digital communication form India Institute of Technology, Kanpur in 1990, and PhD from the Indian Institute of Science Bangalore (IISc) in the year 2006. Born in the traditional and ancient city of Tiruchirapalli, she has had her initial education in the states of Maharashtra, Andhra Pradesh and Karnataka. She has been with BMS College of Engineering, Bangalore, since 1995, and has to her credit publications in the domain of Diffuse Optical Tomography; Signal processing; Signal Processing Education; and Engineering Education. She has personally presented papers in conferences held at Singapore, Dubai, Florida and Arizona. She has successfully completed AICTE funded MODROBS and the IIPC projects. She has published a Book on **'Effective Implementation of OBE leading to Accreditation',** through the ISTE, WPLP, AICTE, project. She has uploaded few lectures on 'Digital Signal Processing' and 'Outcome Based Education' , on her **You Tube Channel-Kanmani's Lectures'.** She has served as Dean-Academics, for a period of two years; and as the Head of the Department, for a period of fifteen years. She handles the under-graduate course, on Signal Processing and Communication. Her prior employment as a teaching faculty was with Thadomal Shahani College of Engineering (Mumbai) and K L College of Engineering (Guntur). She is Senior Member IEEE, Fellow IETE and Life Member ISTE.

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