1. Record Nr.	UNINA9910806192203321
Autore	Esakkirajan S.
Titolo	Digital Signal Processing : Illustration Using Python / / by S Esakkirajan, T Veerakumar, Badri N Subudhi
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	981-9967-52-X
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (535 pages)
Disciplina	813
Soggetti	Python (Computer program language)
	Signal processing
	Algorithms
	Computer science
	Python
	Digital and Analog Signal Processing
	Design and Analysis of Algorithms
	Theory and Algorithms for Application Domains
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	CHAPTER 1: Generation of Continuous-Time Signals -- CHAPTER 2: Sampling and Quantization of Signals.-CHAPTER 3: Generation and Operation on Discrete-Time Sequence -- CHAPTER 4: Discrete-Time Systems.-CHAPTER 5: Transforms.-CHAPTER 6: Filter Design using Pole-Zero Placement Method-CHAPTER 7: FIR Filter Design-CHAPTER 8: Infinite Impulse Response Filter-CHAPTER 9: Effect of Quantization of Filter Coefficients-CHAPTER 10: Multi-rate Signal Processing-CHAPTER 11: Adaptive Signal Processing Case Studies.
Sommario/riassunto	Digital signal processing deals with extraction of useful information from signals. Signal processing algorithms help observe, analyse and transform signals. The objective of this book is to develop signal processing algorithms using Python. Python is an interpreted, object-oriented high-level programming language widely used in various software development fields such as data science, machine learning, web development and more. Digital Signal Laboratory is playing an important role in realizing signal processing algorithms, utilizing

different software solutions. The intention of this textbook is to implement signal processing algorithms using Python. Since Python is an open-source language, students, researchers, and faculty can install and work with it without spending money, reducing the financial burden on institutions. Each chapter in this book begins with prelab questions, a set of Python examples to illustrate the concepts, exercises to strengthen the understanding of the concepts, and objective questions to help students prepare for competitive examinations. This book serves as an undergraduate textbook, it can be used for individual study, and it can also be used as the textbook for related courses.