Draft

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Preface

The notion of communication can be described simply as the transmission of information from a given source to a particular destination through a succession of processing stages. Advances in communication systems, computers, high-speed information networks, microelectronics, and multimedia systems have made it possible to send messages over great distances easily, reliably, and most importantly, economically. They have also made it possible to send large amounts of data, both natural and man-made, quickly from one point to another with a very small probability of error.

The objective of these lecture notes is to present an introductory level treatment of traditional as well as current analog, pulse, and digital communication systems with many examples ranging from classical radio systems to emerging applications including many computer simulations completely solved using *de facto* industry standard Matlab© Package[1]. Self-explanatory source codes, i.e., m-files as well as outputs for examples and exercises using this package are provided. In addition, a number of excellent examples are included in the body of the text with acknowledgement of the original authors or their publishers.

The first six chapters of these lecture notes is currently being used at San Diego State University and Sabanci University, Istanbul, Turkey in third-year undergraduate courses upon completion of an introductory course on Signals and Systems. Upon successful completion of these courses students normally enroll in subsequent courses in Communications Engineering and the Digital Signal Processing programs. The second half of the text is currently being designed for the second course in communications where the concentration will be on base-band and band-pass digital communication systems, communication under noisy regimes and new applications in the wireless and wired infrastructures.

[1] Matlab is a copyrighted Software Simulation Platform by Mathworks, Inc. This textbook uses the latest edition of the Professional Release with Simulink. Both the Sun workstations and the PCs in the College of Engineering Laboratories have site licences. Students normally use the Students Version of the same edition. The implementations of all the Matlab based exercises can be solved using the Student Edition.

CONTENTS (Draft; Only Chapters 1-2 are current, rest in progress)