

Modem Theory – An Introduction to Telecommunications.

Blahut, Richard E. *Modem Theory – An Introduction to Telecommunications*. New York, NY: Cambridge University Press, 2009, 497 pp. \$85.00 (Hardbound).

At the heart of any modern communication system is the modem, connecting the data source to the communication channel. This first course in the mathematical theory of modem design introduces the theory of digital modulation and coding that underpins the design of digital telecommunications systems. A detailed treatment of core subjects is provided, including baseband and passband modulation and demodulation, equalization, and sequence estimation. The modulation waveforms for communication channels and digital recording channels are treated in a common setting and with unified terminology. A variety of more advanced topics is also covered, such as trellis codes, turbo codes, the Viterbi algorithm, block codes, maximum likelihood and maximum posterior probability, iterative demodulation, and jamming. Numerous end-of-chapter exercises are also included to test the reader's understanding throughout. This insightful book is ideal for senior undergraduate students studying digital communications and is also a useful reference for practicing engineers.

Richard E. Blahut is the Henry Magnuski Professor of Electrical and Computer Engineering at the University of Illinois, Urbana-Champaign. He is a life Fellow of the IEEE and the recipient of many awards including the IEEE Alexander Graham Bell Medal (1998) and Claude E. Shannon Award (2005), the Tau Beta Pi Daniel C. Drucker Eminent Faculty Award, and the IEEE Millennium Medal. He was named a Fellow of the IBM Corporation in 1980, where he worked for over 30 years, and was elected to the National Academy of Engineering in 1990.