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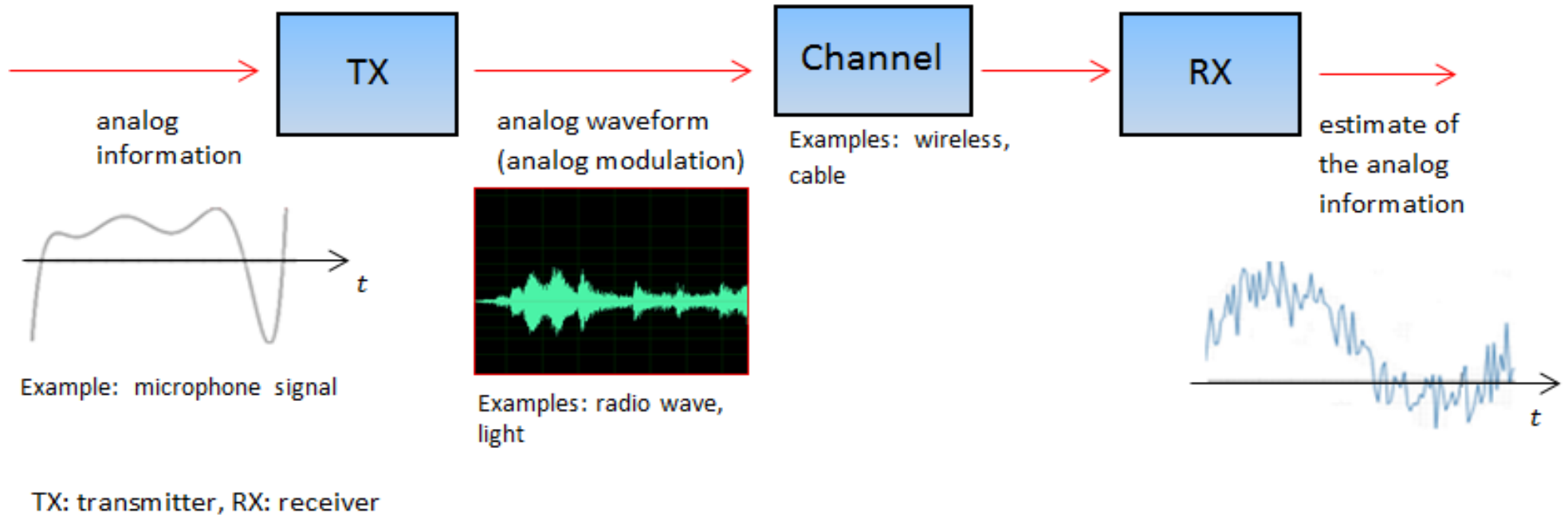


New Jersey's Science &
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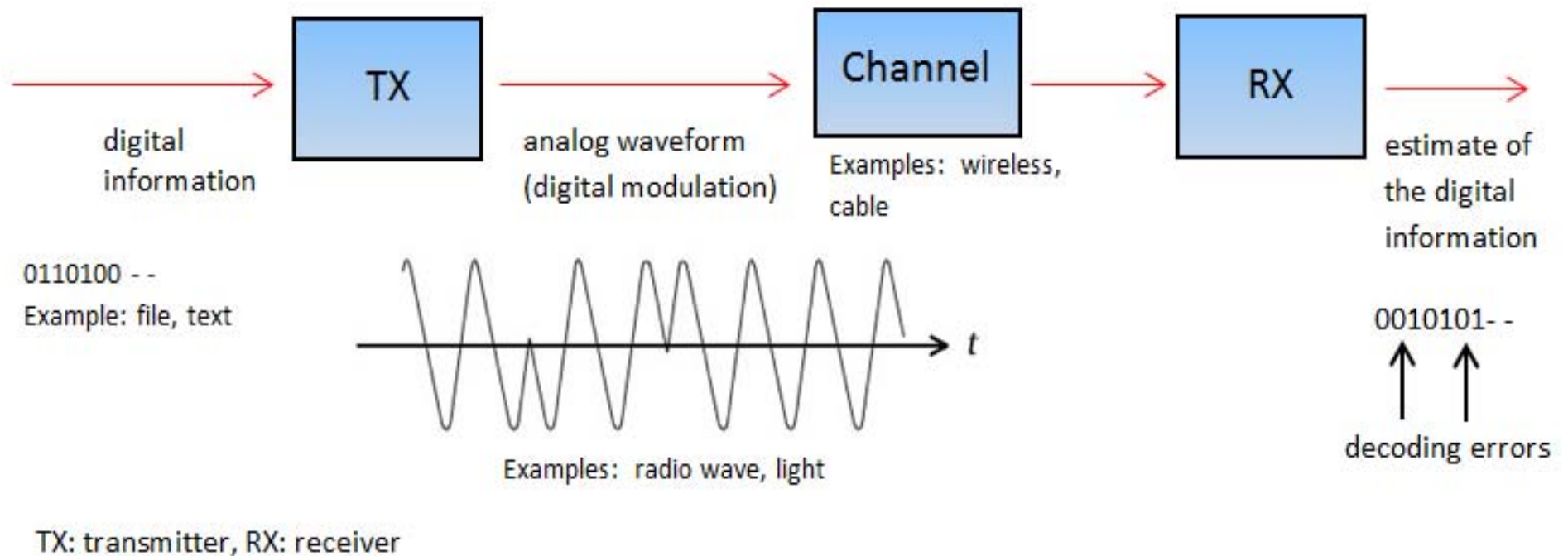
THE EDGE IN KNOWLEDGE

Introduction (Chapter 1)

Basic Model of an Analog Communication System



Basic Model of a Digital Communication System



Brief History of Communication

- 1850's – telegraph: digital communication system
 - Digital information (text)
 - Digital modulation (Morse code)
- 1870 – telephone: analog communication system
 - Analog information (voice)
 - Analog modulation
- 1900 – wireless telegraph
- 1920-30 – radio and TV: analog communication systems
 - Analog information (voice, music, video)
 - Analog modulation (AM, FM)

Brief History of Communication

- 1947 – transistor
- 1960 – digital multiplexing of voice signals:
 - analog information first digitized and then transmitted using digital modulation
- 1970-80 – cellular systems
- Today – the information age:
 - Internet, cellular networks,...

Outlook

Communication is enabled by protocols

Application layer	Ex.: Skype
Transport layer	Ex.: TCP
Network layer	Ex.: IP
Data link layer	Ex.: Ethernet
Physical layer	What this course is about: Transfer of analog/digital information over a physical channel

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