AV314 - Communication Systems I

Lecture 1

22/07/2019

Course logistics: Course grading, Course syllabus, Textbooks and references, Other rules.

Information is available at https://vineethbs.github.io/2019_AV314/

You have to regularly visit this webpage for news about this course.

Please note that assignments would have to be submitted using google forms, the links will be put up.

Some programming assignments might require programming - Matlab/Python knowledge is useful.

Courses that are useful for understanding AV314

- Signals & Systems, Analog and Digital Circuits, Control Systems

Courses that need AV314

- Digital communication, Information theory and coding, Computer networks, Mesh networks

What does a communication system do? Examples of communication systems?

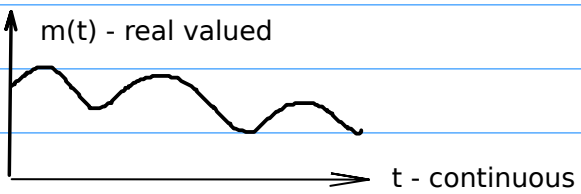
The Internet, AM/FM radios, Television, Walkie-Talkies, Satellite communications

These systems are engaged in transferring information from a source of information to a destination.

The source and the destination of information are separated either in space or time.

The information at the source is a-priori unknown to the destination (otherwise, what is the need to communicate?)

We consider the information at the source to be an electrical signal m(t)



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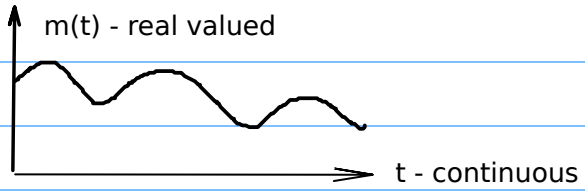

Communication engineers will have access to some physical mechanism by which the signal m(t) could be transferred from the source to the sink. For example, suppose m(t) is an electrical signal, we can think about using a pair of wires as a mechanism to transfer m(t) from the source to the sink.

What are other examples of mechanisms one can think about?

Wireless transmission, optical signalling, smoke signals, flags, carrier pigeons!

In this class we want to understand how such mechanisms can be used to transfer information from the source to the sink.