

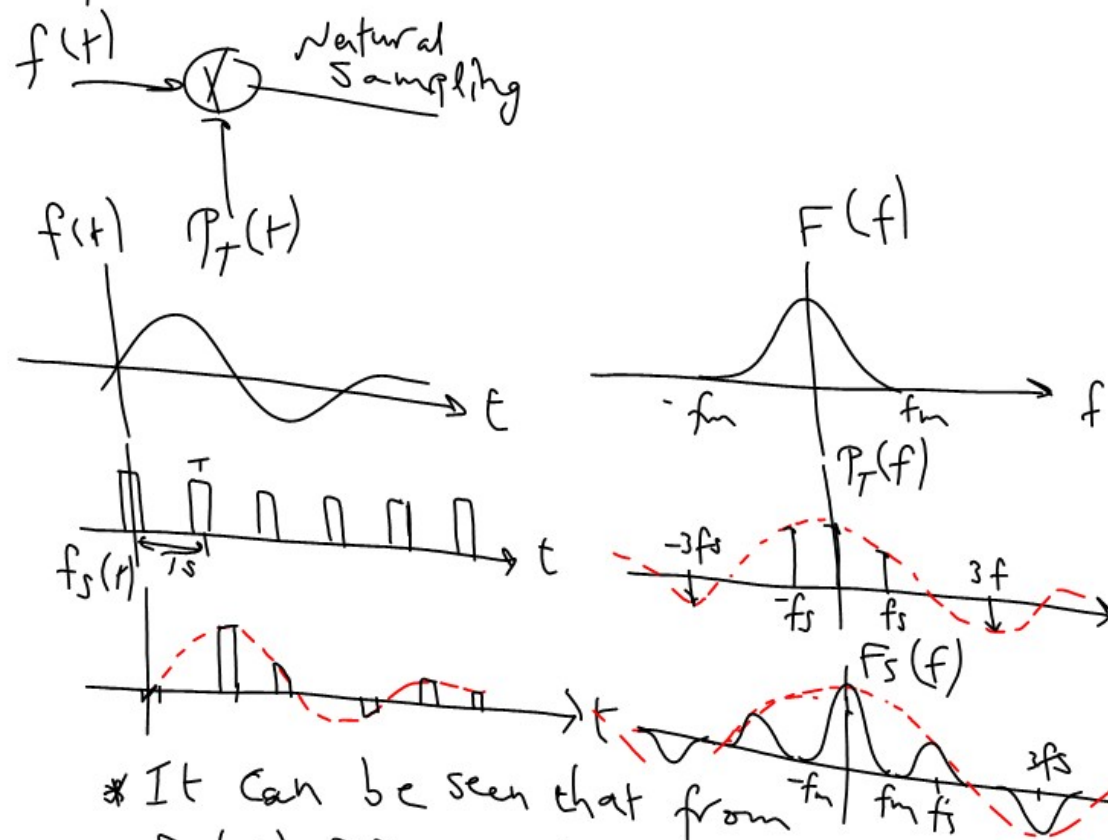
- * In the previous lectures we consider sampling by multiplying the information signal by an ideal train of impulses
- * However in practical circuit the generation of an ideal train of impulses is not possible due to circuit limitations
- * all practical circuits can generate square pulses with finite length duration as shown



- * This fact leads to another two sampling types known as
 - a) natural sampling
 - b) flat top sampling (Pulse amplitude modulation PAM)

Natural Sampling

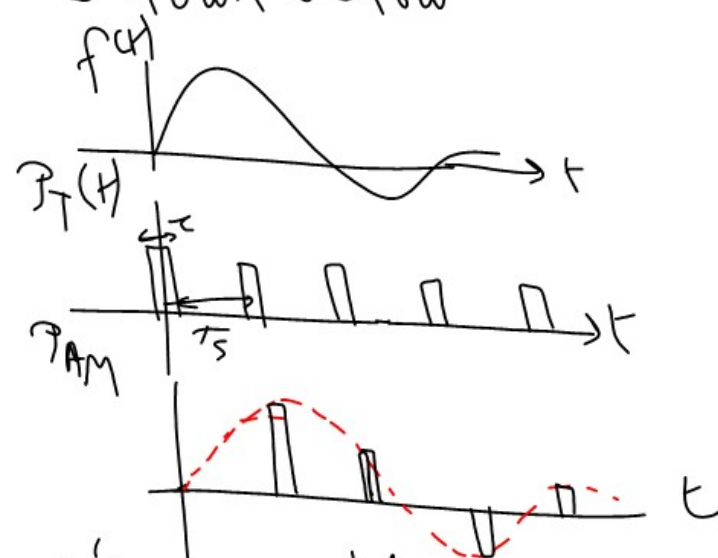
* In natural sampling the information signal $f(t)$ is multiplied by a periodic pulse train as shown below



* It can be seen that from $f_s(f)$ figure that we can reconstruct the continuous time signal by using a LPF

Flat top sampling (PAM)

* In flat top sampling the amplitude of a periodic pulse train is varied according to the amplitude of the message signal as shown below



* It is possible to recover the continuous time signal from the discrete time pulses by using a LPF provided that $\tau/T_s < 0.1$

* Flat top sampling can be generated by a circuit known as sample and hold circuit, which is illustrated below

