## SNS COLLEGE OF TECHNOLOGY



(An Autonomous Institution) Coimbatore - 641 035 **DEPARTMENT OF MATHEMATICS** RANDOM PROCESSES, WIDE SENSE STATIONARY PROCESS



Random Peocess:

A landom placess is a collection of lanton vailabres {x(8, t)} that are functions of a real variable t where SES, & is the Sample Space and tet.

A Compactson between Random Vallable and Random Plocess:

Random Vallable

gardom Places

J. A function of the possible oct comes of an experiment. ie, x(8)

Outcome is mapped 900 a number (x)

A function of the possable outcomes of an experiment and also tence ie, x(B, t) outcomes oue mapped Porto wave form which is a function of time (+)

Classification:

Forted to a few ag

contenuous

Descrete

Contanuous

Continuous Random puocess

confincedas Random Lequence

Driciete

proceede

Discrete

Random Peocess

Random Lequent

Scanned with CamScanner

## SNS COLLEGE OF TECHNOLOGY



## (An Autonomous Institution) Coimbatore – 641 035 DEPARTMENT OF MATHEMATICS RANDOM PROCESSES, WIDE SENSE STATIONARY PROCESS



Stationary Peocess.

A landons Process & said to be Stationary
of its mean and variance doesn't depend on time 't'.
ie, E[x(t)] = Constant

2 V[x(t)] = constant

Evolutionary Process:

A landom Process that is not Stationary on any sense is called as evolutionary process.

first order Stateonary Process:

A landom process is called 1st order statemany of its first order density function doesn't depend on time it.

ie. E[x(t)] = constant

wide sense stationary process (wss):

A landom peocess & said to be was

i). E [x(t)] = constant

ii). The Auto correlation PXX (T) = E[xtt) x(t+T)]

Johnt whole sense stationary process ( Iwss)

Two processes x(t) & y(t) are said to

be JWBS PF Rxy(t)= E[x(t) y(t+t)]

Short sense stationsory process (O.) Strongly Stationsory
Process(SSS)

A landom process is said to be SSS, 9f all les statecteral properties do not Ubange with teme.

Scanned with CamScanner