

SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR

B.E. 7th SEMESTER, INSTRUMENTATION & CONTROL ENGINEERING DEPARTMENT

DIGITAL SIGNAL PROCESSING SUBJECT CODE: 2171708

MST SYLABBUS

1	INTRODUCTION Signals, System and signal processing, Classification of signals, Concept of frequency in continuous time and discrete time for sinusoidal signals, Analog to Digital and Digital to analog conversion, Sampling theorem, Quantization, Coding of Quantized Samples, Analysis of digital signals and systems versus discrete – time signals and systems.
2	DISCRETE TIME SIGNALS AND SYSTEMS Discrete – Time Signal Discrete – Time Systems Analysis of Discrete Time Linear Time - Invariant Systems: Discrete Time Systems Described By Difference Equation Correlation of Discrete Time Signals
5	DISCRETE FOURIER TRANSFORM : ITS PROPERTIES AND APPLICATION Frequency –Domain Sampling (The Discrete Fourier Transform): frequency domain sampling and reconstruction of discrete – time signals, discrete Fourier transform (DFT), the DFT as a linear transformation, relationship of the DFT with other transformation Properties of the DFT: periodicity, linearity, symmetry, multiplication of two DFTs and circular convolution Linear Filtering Methods Based on the DFT: use of DFT in linear filtering, filtering of long data sequence; Frequency Analysis of Signals Using the DFT
Dr.TEJAS V. SHAH ASSOCIATE PROFESSOR	

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B.E. 7th SEMESTER, INSTRUMENTATION & CONTROL ENGINEERING DEPARTMENT

PROCESS DYNAMICS & CONTROL CODE: 2171710

MST SYLABBUS

1	Introduction to process control Dynamics and stability of controlled systems. Dynamic behavior of linear and non-linear first-and second-order systems. The development of mathematical models to describe process dynamic behavior
2	Dynamic Behavior and Control of Distillation Column Mass and Energy balance, column feed control, column pressure control, control of overhead and bottom composition, distillate reflux flow control. Frequency response, lag in liquid and vapor flow, concentration lag, predicting the behavior of control system
3	The Dynamics and Control of Boilers Boiler basic controls (safety interlocks, single element, two and three element level control, shrink, swell effect, inverse response, feed forward control of feed water, dynamic compensation, fuel–air ratio, stoichiometric calculations, steam temperature and pressure control) Boiler dynamics, burner management system, boiler optimization
4	The Dynamics and Control of Heat Exchangers Basic control strategies, dynamics of the heat exchangers, response to changes in steam temperature, measurement lag and control schemes
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