

SHANTILAL SHAH ENGINEERING COLLEGE BHAVNAGAR
INSTRUMENTATION & CONTROL ENGINEERING

GTU PAT EXAMINATION-WINTER-2019 SYLLABUS

SEMESTER: BE-5TH

SUBJECT NAME: Control System Component

SUBJECT Code: 2151704

Chapter No.	Topic
1	BASICS OF INSTRUMENTATION : -Introduction -Instrument symbols & Tag numbering system -Organization of instrumentation dept.
2	CONTROL CENTERS & PANELS - Electric Power Systems, Instrument Power Requirements, Instrument Power Distribution, Control Room Lighting, Communication Systems, Electrical Classifications, - Control Panel Types, Flat face Panels, Breakfront Panels, Consoles, Comparison Of Panel Types, Panel Layout, Face Layout, Rear Layout, Auxiliary Racks & Cabinets, Panel Piping & Tubing, - Air Headers, Tubing Runs, Panel Wiring, Nameplates & Tags, Painting, Graphic Displays - Control Room Layout Panel, Human engineering, Panel enclosure standard - Bid Specifications, Panel Inspections, Control center inspection
3	INSTRUMENT AIR SYSTEM - Sizing criteria, pressure level, air supply source, Compressor systems, positive displacement compressors, dynamic compressors, non-lubricated compressor, compressor cooling, compressor control, - Oil removal, general considerations, refrigeration type, necessity for dryers, desiccant type - Design guideline criteria, distribution systems, general layout, Header & branch sizing, materials, take off & valving, control room air supply, case purging for electrical area classification.
6	SIGNAL CONVERTING ELEMENTS : - Pneumatic to electrical convertors, Electric to Pneumatic convertors, Voltage to Current convertor, Current to Voltage convertor, Frequency to voltage & Voltage to Frequency convertor
8	TRANSMITTER: -Pneumatic Transmitter- Force balance & Motion Balance - Electronic Transmitter- 2- wire & 4-wire system - Smart Transmitter