

## Basic principles of process control systems and automation – Automation systems

### Your Objectives:

At the end of the course, you should be able to justify automation systems.

### What is automation?

Historically speaking,  meant those processes of  of work and production which were significantly modernized by the  revolution. Today, however, automation goes well beyond mechanization as it involves, not solely the execution of tasks, but also quality-control and  tasks taken on by artificial systems insofar as the entire process now involves the use of , control systems, etc., in order to optimize production processes in the production of .

Modern automation systems used in  consist of made-to-measure,  precise hardware and  components. They are employed throughout, from single steps to complete processes, including management, regulation and . Because of the good cost-performance ratio and the , platform solutions that can be

[ ] to certain requirements by both manufacturer and [ ] have become very popular.

At [ ], the primary automated system used for process control is the Delta V Distributed Control System (DCS)<sup>®</sup>. It would be inane to address the complexities of such a [ ] system within these few pages. But briefly...

### **Delta V Distributed Control System<sup>®</sup>**

Delta V was designed to apply automation to process [ ]. While the components of the system are [ ] on industry standards and use PC hardware and standard network configuration, each [ ] is customized to the user's needs. At Biogen's manufacturing locations, the appearance and functionality of Delta V, as well as the version implemented on premises, will largely vary according to the [ ] and processes in place.

### **Network Architecture**

Delta V is set up using a standard [ ] (LAN) configuration. In such a network, various devices are connected to a hub or switch. Each device occupies a position, or node, on the network. By connecting the devices to a network configuration, [ ] can be transmitted to and from each device.

In the case of Delta V, the network is comprised of workstations (operating terminals), as well as electronic input/output cards (I/O cards) that provide a network interface for

valves, motors, , and machines  
within the manufacturing .

The Delta V network is closed, which means that connectivity to the network is  
, and so access to the  and devices on  
that network is restricted to  personnel.

**Aufgabe Lückentext:**

**Folgende Wörter bitte in den Lückentext einfüllen.**

**Jedes Wort kommt einmal vor.**

**Bitte Gross- und Kleinbuchstaben beachten.**

adapted, authorized, based, Biogen, biotechnology, computer, control, data, Delta V System,  
equipment, environment, flexibility, goods, highly, industrial, industries, local area network,  
machines, mechanization, pumps, restricted, regulatory, software, user, various, workstations