

Centre of Excellence in Maritime & Shipbuilding



DATES : 15-18 SEPTEMBER 2026

DISTRIBUTED CONTROL SYSTEMS FOR ENGINEERS: A 4-DAY INTENSIVE COURSE

Course Preview

Distributed Control Systems (DCS) is a computerized control system for a process or plant that consists of a large number of control loops, in which autonomous controllers are distributed throughout the system, but there is central operator supervisory control. DCS can be used to enhance reliability and reduce installation costs by localizing control functions near the process plant, with remote monitoring and supervision. These systems are used on large continuous process plants where high reliability and security is required

Target Audience

- Prerequisite: Should have knowledge of PLC & PLC Programming
- Corporate Professionals & Engineers from automation, manufacturing, process, and embedded systems domains.
- Industry Practitioners in roles such as Automation Engineer, Control Systems Engineer, Instrumentation Specialist, or Project Lead.
- Academic Faculty & Researchers in Electronics & Communication Engineering (ECE), Instrumentation, Electrical, and allied disciplines seeking industry-aligned knowledge.
- Technical Managers & Team Leaders overseeing automation projects or digital transformation initiatives.

METHODOLOGY

This course follows a dual-session format each day:

- **Expert-Led Insights:** 50% of the course delivered by IIT Tirupati faculty, ensuring academic excellence and thought leadership.
- **Hands-On Learning:** 50% dedicated to immersive practical sessions for real-world skill application.
- **Hybrid Format:** Seamless blend of theory and practice across three dynamic days.
- **Capstone Challenge:** Participants tackle live problems or mini-projects to consolidate learning.
- **Certification & Career Boost:** Receive a recognized certificate and guidance for future pathways.



PROGRAM SCHEDULE

4 Days | Full-Time Immersive | CEMS Vizag Campus

Day 1	
Introduction to Industrial Automation with DCS	• Overview of Industrial Automation and System Hierarchy • Fundamentals of Distributed Control Systems (DCS) and Applications of DCS in Industry
Essentials of Process Control	• Basics of Feedback Control, Process Dynamics, Response of first and second order systems • PID Control Fundamentals and PID Tuning • Advanced Control Strategies: Cascade control, Feedforward control, Ratio control and Split range control • Time delays and Dead-time in processes and control philosophy
Day 2	
Introduction to PCS 7	• Introduction to standard architecture of PCS 7 like ES, AS, OS • Working with SIMATIC Manager in PCS7 fashioned way • Creating the Multi-project and Configuring Hardware (AS & OS) • Working with different views like Component View & Plant View
Hardware	• Introduction to AS (S7 400) Hardware like PS, CPU & CPs • Overview of Simatic S7-400 family, Rack details of UR, CR, ER
Day 3	
CFC Charts	• Working with CFC Charts and develop logic using CFC charts • Optimization of the charts • Compiling, downloading & testing CFC charts
Day 4	
Logic operations & Blocks	• Basic logic gates, NO/NC Instructions • Timers, Counters, Conversion, Maths, Move, Comparators, Scale, Un-Scale
Working with OS	• Compiling OS • Basics Operating & Monitoring
Communication	• AS (S7-410 Smart) Communication with ET200PA SMART on PROFIBUS • Exercises & Hands-on Practice

LEARN FROM THE EXPERT



From IIT Tirupati:

Dr. P. S. Sai Krishna

- Associate Professor, Department of Electrical Engineering, IIT Tirupati.
- Ph.D., IIT Madras. Expertise in Control Systems, Robotics and Automation.



From CEMS:

Ms. T.V. Sowmya SriLalitha

- Assistant Manager, CEMS
- 10+ years of Industry Experience with IGIAT & CEMS
- Certified Expert in Siemens TIA Portal, Step 7, WinCC (SCADA/HMI)

INVESTMENT & INCLUSIONS

Course Fee (Faculty Members): ₹6,000 + GST

****Accommodation (Optional) - 12,500 per participant (incl. GST), covering 5 days of stay in CEMS VIZAG (4 training days + 1 flexible day), breakfast, lunch and refreshments.***

Account Name : Centre of Excellence in Maritime & Shipbuilding (CEMS)

Account Type : Savings Account

Bank Name : ICICI Bank

Account Number : 126901000796

IFSC Code : ICIC0001269

Branch : HSL Branch, Visakhapatnam



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