A Report On

ONE DAY WORKSHOP

On

Application of Control Systems in Modern Industries

Organized by

The Department of Electrical & Electronics Engineering

ICFAI Technical School

Faculty of Science & Technology

January 24, 2020

At

Control Systems Laboratory

ICFAI University, Tripura

A One day Workshop on '*Application of Control Systems in Modern Industries*' was jointly organized by the Department of Electrical & Electronics Engineering (EEE), ICFAI Technical School (ITS), Faculty of Science & Technology (FST), ICFAI University, Tripura (IUT) on January 24, 2020. The venue was the Control Systems Laboratory, ICFAI University, Tripura. The event was focussed on one of the most important contemporary topics in the domain of industrial automation. The participants were the students of the Department of Electrical and Electronics Engineering.

The introductory session started with the felicitation of the distinguished guests, Er. Chandan Dutta and Er. Saptak Bhattachrya. Er. Dutta, an alumnus of the Jadavpur University, Kolkata is a very successful entrepreneur and one of the leading manufacturers and suppliers of electrical laboratory instruments, flow control systems, level control systems, pressure control systems, temperature control systems PLC modules and RC surge suppressors to various industries and academic institutions in India. Er. Bhattacharya, an alumnus of the University of Calcutta, is an expert on PLC systems and industrial automations. He has been associated with various industries as consultant.

In the welcome speech the Dean of Faculty of Science and Technology, Prof. (Dr.) P.R. Borthakur stated the need of automation in the modern day industries, where manufacturing activities and material flows are handled entirely automatically. Also, how the new wave of automation will be driven by the same things that first brought robotics and automation into the workplace: to free human workers from dirty, dull, or dangerous jobs; to improve quality by eliminating errors and reducing variability; and to cut manufacturing costs by replacing increasingly expensive people with ever-cheaper machines. He wished all the success to the participants and encouraged them to acquire all the benefits of the workshop. The session followed by the speech of Prof. (Dr.) K.K. Rao, Principal, ICFAI Technical School. Prof. Rao discussed on Automation as the technology by which a process or procedure is performed with minimal human assistance. He also stated Automation or automatic control is the use of various control systems for operating equipment such as machinery, processes in factories, boilers and heat treating ovens, switching on telephone networks, steering and stabilization of ships, aircraft and other applications and vehicles with minimal or reduced human intervention. The next speaker Dr. Sayantan Chakraborty, H.O.D., the Department of Electrical and Electronics Engineering highlighted mainly on the practical application fields ranging from a household thermostat controlling a boiler, to a large industrial control system

with tens of thousands of input measurements and output control signals. He further mentioned that the control complexity can range from simple on-off control to multi-variable high-level algorithms. The session ended with the concluding speech of Dr. Shantanu Acharya, Assistant Professor, the Department of Electrical and Electronics Engineering and the workshop coordinator. Dr. Acharya concluded the session with the gist of all the speeches of the previous speakers and thanked all the participants and dignitaries for their valuable presence with the announcement of Tea-break.

In the first technical session, Er. Chandan Dutta conducted training programmes on:

1. Time Response of Second Order System
2. Characteristics of Synchros
3. Effect of Feedback on DC Servo Motor
4. Effect of P, PD, PI, PID Controller on a Second Order Systems
5. Lag and Lead Compensation – Magnitude and Phase Plot
6. Temperature Controller Using PID
7. Characteristics of Magnetic Amplifiers
8. Characteristics of AC Servo Motor

During the workshop all the 32 participants were divided into 8 groups, each with 4 participants. After a small demonstration they performed the hardware experiments.

The second technical started after the lunch break. In this session Er. Saptak Bhattacharya conducted training programme on Programmable Logic Controller (PLC) – Study and Verification. In this module the PCs/Lapops were used as the input device though Ethernet connectivity and LED and DC Motor load were connected with the PLC as output devices. Both Ladder diagram and simulation of block diagrams were taught in that session.

The workshop ended with the Vote of Thanks by Dr. Shantanu Acharya.

Glimpses of the Workshop:

Dr. P.R. Borthakur felicitating Er. Chandan Dutta

Dr. K.K. Rao felicitating Er. Saptak Bhattacharya

Demonstration of PLC System

Technical Session

Student Participants