

# ADVANCED INSTRUMENTATION AND PROCESS CONTROL (AIPC) COURSE

## COURSE OBJECTIVES

After the course, the participants will be able to:

- ☺ Select the type of level and flow measurement, as well as the control valve applicable to a process situation.
- ☺ Perform calculations required in level measurements, orifice sizing, control valve sizing and controller tuning.
- ☺ Understand the application, hardware and software requirements and basic configuration techniques in distributed control systems (DCS).

## COURSE CONTENT

The course has a total of 30 hours and will cover the following topics.

### 1.0 Level Measurements & Calculations

- 1.1 Methods of level measurement
- 1.2 Operation, application & installation
- 1.3 Selection of measurement method
- 1.4 Level measurement calculations

### 2.0 Flowmeter Selection & Orifice Sizing

- 2.1 Flow measurement methods
- 2.2 Operation, application & installation
- 2.3 Selection of measurement method
- 2.4 Orifice sizing calculations

### 3.0 Control Valve Selection & Sizing

- 3.1 Control valve body types
- 3.2 Flow characteristics
- 3.3 Actuators & accessories
- 3.4 Valve noise
- 3.5 Valve selection guidelines
- 3.6 Valve flow coefficient
- 3.7 Valve sizing equations

### 4.0 Automatic Control & Tuning Techniques

- 4.1 Control principles
- 4.2 Process characteristics
- 4.3 Control actions
- 4.4 Control modes
- 4.5 Tuning calculations
- 4.6 Tuning simulation

### 5.0 DCS Fundamentals & Configuration

- 5.1 Evolution & development
- 5.2 Hardware requirements
- 5.3 Software requirements
- 5.4 Network requirements
- 5.5 Configuration techniques

### 6.0 Engineering Documentation

## TARGET PARTICIPANTS

The course is open to holders of a bachelor's degree in mechanical, electrical, electronics, industrial or chemical engineering; as well as to instructors of technical schools and industrial technicians. Knowledge of the basics of Instrumentation and Process Control is a prerequisite to the program.

## TRAINING METHODOLOGY

The lecture-discussion method will be used and sufficiently supplemented by laboratory and simulation work, which is the hands-on portion of the program. The resource persons will supervise individual and group exercises closely.

## VENUE

Sessions will be conducted at the Low-Cost Automation (LCA) Rooms of UPISSI.

## AIPC Reservation

- YES, I will attend on
- January 28 – February 25, 2012 (5 Sats.)
  - June 04 – 08, 2012 (Mon-Fri)
  - September 17 – 21, 2012 (Mon-Fri)

9:00 AM – 4:00 PM

PROGRAM COST: PhP10,000.00

- NO, I will not attend, but include me in your mailing list.

Name: \_\_\_\_\_

Nickname: \_\_\_\_\_

Home Address: \_\_\_\_\_

\_\_\_\_\_

Tel. No.: \_\_\_\_\_

Position: \_\_\_\_\_

Office: \_\_\_\_\_

Office Address: \_\_\_\_\_

\_\_\_\_\_

Tel. No. \_\_\_\_\_

Fax No. \_\_\_\_\_

E-mail: \_\_\_\_\_

Immediate Superior: \_\_\_\_\_

Position: \_\_\_\_\_

Office Address: \_\_\_\_\_

What do you expect to learn from the course?

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\_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

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The UP ISSI reserves the right to make changes in training fees and other matters covered by this publication, as it deems necessary.

**UPISSI:  
A Center for Entrepreneurship Training  
and Development in Asia**

The UP Institute for Small-Scale Industries is a training, research and development institution assisting and promoting the development of small enterprises in the Philippines.

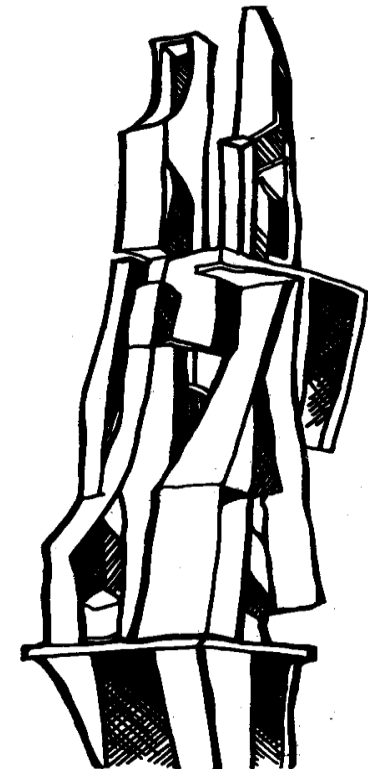
The greater part of training resources has been placed on the development of potential and existing entrepreneurs, managers, supervisors, trainers, extension officers, consultants, and other catalysts who will be able to hasten the development process.

Pushing beyond national boundaries, the UP ISSI has offered its expertise and facilities to other countries similarly engaged in increasing their small enterprise base. Thus, it has emerged as a center for "entrepreneurship training and development" in the region.

The UP ISSI links with private and public institutions here and abroad for two reasons: to draw support for its activities and to share its experiences and knowledge in small enterprise development programs. Prominent among its linkages is the Small Enterprises Research and Development Foundation (SERDEF).

✉ For particulars, write or call ☎

**The Chair  
Training Department  
University of the Philippines  
Institute for Small-Scale Industries**  
E. Virata Hall, E. Jacinto Street  
UP Campus, Diliman, Quezon City 1101  
Tel. Nos.: 928-7076 to 79  
Telefax No.: (632) 426-5759  
E-mail: [training.issi@up.edu.ph](mailto:training.issi@up.edu.ph)  
Homepage: <http://www.issi.upd.edu.ph>  
Facebook page: [www.facebook.com/upissi](http://www.facebook.com/upissi)



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