

# INSTRUMENTATION TECHNOLOGY, LEVEL 2 CERTIFICATE

Direct Line Office: 281-478-2712

## Campus

Central Campus

## Information

Instrumentation Technology training at San Jacinto College falls into three categories: instrumentation installation, general instrument maintenance, and control systems technology.

Instrumentation technology is arguably the most technologically challenging field in industry today. Highly trained instrument technicians are responsible for installing, calibrating, and troubleshooting individual process instruments as well as complete control systems. They are expected to understand the workings of a process as well as the complexity of the control system.

Computer control in the processing industry provides a platform for more sophisticated control strategies and requires connecting intelligent devices together through various networking systems and protocols.

Key facilities of the Instrumentation Technology program at San Jacinto College are equipped with both pneumatic and analog electronic lab control. We also have a 10-station Allen Bradley (AB Compact Logix) Programmable Logic Controller (PLC) lab and a 10-station Emerson Process Management DeltaV™ Distributed Control System (DCS) lab with ten fully operational flowing process instrumented stations. In addition, we have access to a full-sized functioning distillation (propylene glycol and water separation) unit to explore maintenance issues and control strategies.

We have 16 Emerson Performance Learning Platforms (PLP) and students are introduced to these in INCR 1302 Physics of Instrumentation and INTC 2310 Principles of Industrial Measurement II. These consist of Rosemount SMART Transmitters Coriolis, Mag Meters, and Vortex Meters for flow. We have the Meriam, HART 475, & TREX Communicators that are used by the majority of industry, Fluke 787 Digital Multi Meters. A common theme here at the LyondellBasell Center for Petrochemical, Energy, & Technology program is the use of the DeltaV™ DCS as we have the DCS on the following: Emerson PLPs, Hot Unit, DCS Lab, and the Control Room, which operates the fully functioning Propylene Glycol Unit.

Our primary focus is in providing the local processing industry with solid, trainable entry-level technicians. However, our students will have the latitude of working in other related areas such as oil exploration and production, municipal water treatment facilities for cross-country pipeline companies, electrical power plants, and in manufacturer field technician positions.

Students enrolling into San Jacinto College programs with external learning experiences (i.e., clinical, practicum, externship, cooperative, etc.) will be required to comply with the immunization requirements and policies of the clinical/external learning sites to engage in all clinical/external learning experiences. Vaccination requirements at clinical/external learning sites are implemented pursuant to the independent authority of such facilities and are not mandated by San Jacinto College. Failure to meet the immunization requirements mandated by clinical/external learning sites may limit a student's ability to complete the program and/or may delay the student's graduation date. San Jacinto College does not process exemptions, and students should address



## Program Information

As machines continue to evolve in digital sophistication, intricately connected and operated by complex control systems, instrument technicians have become indispensable to keeping the wheels of industry turning. Working in a comprehensive industrial computer control lab, students learn how to install, maintain, and troubleshoot intelligent integrated control systems, developing skills highly sought after in chemical plants, refineries, pipeline companies, power plants, water treatment facilities, all types of manufacturing plants, and many more businesses.

## Career Opportunities

The primary focus of San Jacinto College's Instrumentation Technology program is to provide the industry with high-quality, trainable, entry-level technicians. Our graduates will find employment in the following industries:

- Chemical plants,
- Oil refineries,
- Oil exploration and production companies,
- Cross-country pipeline companies,
- Electrical power plants,
- Municipal water treatment facilities,
- Manufacturer field technician positions,
- Instrumentation maintenance positions in large buildings or on campus-type facilities,
- Manufacturing plants, and
- Instrumentation sales.

For more information, students may contact 281-998-6350, x1352 or email [Joseph.Zwiercan@sjcd.edu](mailto:Joseph.Zwiercan@sjcd.edu)

potential vaccination exemptions directly with the clinical/external learning site.

## Plan of Study

5INST

<b>First Term</b>		<b>Credits</b>
INCR 1302	Physics of Instrumentation	3
INTC 1448	Analytical Instrumentation	4
OSHT 1320	Energy Industrial Safety	3
CETT 1302	Electricity Principles	3
TECM 1301	Industrial Mathematics <sup>1</sup>	3
<b>Credits</b>		<b>16</b>
<b>Second Term</b>		<b>Credits</b>
INTC 1322	Analog Controls I	3
INTC 1475	Sample Systems	4
INTC 2310	Principles of Industrial Measurement II	3
ETWR 1302	Introduction to Technical Writing <sup>2</sup>	3
<b>Credits</b>		<b>13</b>
<b>Summer Year One Term</b>		<b>Credits</b>
INTC 1315	Final Control Elements	3
<b>Credits</b>		<b>3</b>
<b>Third Term</b>		<b>Credits</b>
ELPT 2319	Programmable Logic Controllers I	3
INTC 1350	Digital Measurement and Controls	3
INTC 2330 or INTC 2388	Instrumentation Systems Troubleshooting or Internship Instrumentation Technology/Technician	3
INTC 2359	Distributed Control Systems	3
<b>Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>44</b>

**Capstone Experience:** INTC 2330 Instrumentation Systems Troubleshooting or INTC 2388 Internship Instrumentation Technology/Technician

### Verification of workplace competencies.

<sup>1</sup> Students desiring to obtain a baccalaureate degree should take MATH 1314 College Algebra. Students entering this program with MATH 1314 College Algebra may substitute this course for TECM 1301 Industrial Mathematics.

<sup>2</sup> Students who have successfully completed ENGL 1302 Composition II or ENGL 2311 Technical and Business Writing may receive credit for ETWR 1302 Introduction to Technical Writing.