

Seminar: Instrumentation and Control engineering, deliverables™

Dates: by agreement, 2020

Length: 2 days (8:00 AM – 4:00 PM)

Fee: by agreement

Location: onsite or online.

Certificate: Certificate issue upon completion.

The seminar includes a useful digital handbook containing actual engineering guides, specifications forms and drawings of typical projects, and according to international standards. The handbook could be used by participants in their projects that they will have to face.

Description: This seminar will present the methodology to design and develop the whole deliverables (written documents and drawings) required for instrumentation and control systems throughout each phase of a project, and its relationship with other engineering disciplines such as civil, process, mechanical and electrical. Also, it will be do practical exercises using deliverables of projects built by the same specialist who will give the seminar.

Designed for: engineers, designers, technicians, and university students linked to the sectors of oil & gas, refineries and petrochemicals, iron and steel, electric power, sugar refinery, paper factories, manufacturing companies, consulting engineering companies, food and beverage, among others.

You will learn, but are not limited to, the following:

- To know activities and all documentation that an Instrumentation and Control engineer should to develop in a typical multi-disciplinary project.
- To identify the document key, what for and its use to develop the others.
- To apply strategies to develop all documentation in such a way faster and that will very useful in fast track projects.
- To design and develop the whole "Deliverables" required in a typical project in all stages of projects.
- To interpret the use and application of international standards: PDVSA, ISA, ANSI, NFPA, CEN, IEEE, among others.
- To start the process to become a project engineer, as a design engineer of Instrumentation and Control.

General Content:

- **Project stages:** concepts | definitions | Instrumentation & Control engineer duties.
- **Conceptual engineering:** activities | deliverables | issuance of key documents.
- **Basic and Detail engineering:** deliverables | sequence of development| engineering standards | purpose | use | content | reading & interpretation | symbology: ISA standards | engineers in charge | design and developing of each one as follows: General specifications for instruments and construction, data sheet, instrument index, signal lists, metric computation, procurements for instruments and materials, scope and payment of metric computations. **P&FDs**, **P&IDs**, location plans, electrical & pneumatic routes, drawing interconnections, control schematics, loop diagrams, installation details, basic knowledge of hazardous area classification, quality assurance and control engineering, QAQC|ISO 9000.
- **Best practices, lessons learned and implementation strategies.**
- **Exercises.**

Methodology and exercises:

Conceptual engineering methodology by presenting the paper of engineer Argenis Garcia: "Design and Construction of Latest Generation Cluster (LGC) wells for heavy oil, using cutting-edge technology and best practices in project implementation (I & II), Edmonton, Canada, WHOC 2011 (<http://www.gbv.de/dms/tib-ub-hannover/682504270.pdf>), Vol 1, Pag.62 and ISA Automation Conference and Exhibition 2015, Europe - Middle East - Africa. 26th – 27th May2015, St. Regis Saadiyat Island, Abu Dhabi, UAE (<http://www.isa-emea-expo.org/>).

- ✦ Basic/Detail engineering methodology by presenting the paper of engineer Argenis Garcia: "Specification of Instruments in hazardous areas, Third Conference on Petroleum Industry Automation, JAIP/Bogotá, Colombia, 2.012."
- ✦ By setting up an actual project, participants shall design and develop: P&IDs, location plans, electrical routes, interconnection drawings, loop diagrams, installation details.

Instructor:

Mr. Argenis Garcia, a specialist in Instrumentation & Control, is an electrical engineer (University of Colorado), with a specialization in project management (Andres Bello Catholic University, UCAB, Venezuela), with 35 years of experience in design, maintenance, construction, commissioning, operations, and technical training. He has worked in cryogenics, refineries, petrochemicals, orimulsion and oil dehydration plants, the sweetening of gas, gas compressor plants, tank farms, pump stations, flow and discharge stations, clusters, transfer pump and multiphase stations and oil and gas pipelines. Duties included management of all stages of projects and engineering, specifications and selection of instruments, and drawings design, QAQC, HAZOP, purchasing, and construction specs. He served as a member of specialist teams to develop and review instrumentation standards according to the Manual of Engineering and Design of PDVSA. He has served as a technical instructor of standards engineering design at the International Center of Education and Development of PDVSA-CIED. He served as an IEEE officer of the student chapter at the University of Colorado (1983). He has trained over 2000 people including engineers, technicians, and operators. (<http://www.isa-emea-expo.org/speaker/argenis-garcia/>)

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