

# Fiberglass Reinforced Plastics Institute, Inc.

## Syllabus

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**Course:** FRP 301 – Introduction to Design and Condition Assessment

**Duration:** Eight (8) contact hours of instruction, with CEU, PDH and TCH credit opportunities.

**Description:** This course provides a hands on detailed look at how fiberglass reinforced plastic (FRP) laminates used in the fabrication of chemical process equipment are designed and manufactured, what their properties are and how they typically fail in service as fabricated structures. This information will help seed your knowledgebase for root cause/affect and cost/value tradeoff centered decision processes. Industry standards and certification programs will be discussed. Both theory and practical experience are blended together with case histories to demonstrate good, risky and poor results that can be expected at design, during fabrication or in the field. Photographs, charts, handouts and demonstrations illustrate concepts, making it easy for beginners and experienced alike to sharpen their understanding of tradeoffs associated with specifying, selling, buying, manufacturing, installing and maintaining FRP equipment.

**Learning Objectives:** After attending this course, participants should be able to:

1. Differentiate and specify good, better and best FRP laminate designs for all applications.
2. Choose industry standards for design, fabrication and inspection purposes.
3. Determine which industry certification programs to use when.
4. Identify all types and compositions of laminates.
5. Assess the design basis for proposed and as built FRP laminates.
6. Describe laminate defects in new and degradation (“corrosion”) in used equipment.
7. Correlate deficiencies in new equipment to failure mechanisms observed in used.
8. Apply concepts to sound decisions that balance cost, risk and public welfare.

**Who Should Attend:**

- FRP Decision Makers
- Inspectors and QA/QC Personnel
- Designers, Engineers and PE’s
- Owner/User and Resident Engineers
- Specification Writers
- Installers, Operators and Maintenance
- Project Managers
- Salespeople
- Purchasing Agents and Buyers
- Those New to Industry

**Prerequisites:** No prior knowledge, special areas of study or experience are required. A general understanding of FRP laminate design, industry standards, manufacturing and inspection may result in establishing a broader and deeper learning experience.

**Recognition:** A completion certificate will be issued to all attendees who participate in the entire program, with eight (8) Professional Development Hours (PDH’s) recorded for Professional Engineers. See Terms and Conditions of Registration for more information pertaining to credit opportunities for Professional Engineers and treatment plant Operators.

**Skill Assessment:** A quiz will be conducted as the last session, with answers discussed within the group as an ungraded learning confirmation exercise. Attendees desiring PDH and TCH credits will be given a program evaluation survey at the end of the course and required to complete it. All attendees are welcome to participate in the survey.

**Instructor:** Gary L. Arthur – FRPI Executive Director and President (see Educator Bio/CV)