

United International Hydro Engineering Company Profile & Capabilities



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Company Introduction:

United International Hydro Engineering (UIHE) has a strong water treatment and process engineering core, with the express business mandate of delivering focused, high-value added services to the Water Treatment and Process Industry.

Manufacturers obtain sustained performance improvement and operational excellence from **United International Hydro Engineering (UIHE)** and provided an ability to do engineering project work faster and more cost effectively.

United International Hydro Engineering (UIHE) has been providing services directly to process manufacturers as well as engineering service providers.

United International Hydro Engineering (UIHE) leverages the best available chemical engineering talent and software, the delivery capabilities of the Internet, and its proprietary analysis methodology to provide insight and value to clients globally. On-site services to help enhance plant performance parameters and productivity are offered as needed.

Company Profile

A high-end engineering and applied technology company providing technical resources and services for prominent engineering and process manufacturing clients.

Headquartered in Amman, Jordan, United International Hydro Engineering has its Technology Centre in Amman, Jordan. Guided by an internationally respected leadership team **United International Hydro Engineering (UIHE)** serves clients in the USA, Europe, South Africa, Middle East and Asia Pacific, with the help of a dedicated team of qualified and experienced process engineers and numerous multi-disciplinary specialists. An industry skilled team actively utilizes cutting edge technical tools and expertise along with state-of-art software to provide customized continuous operational support, to meet client's goals.



Introduction

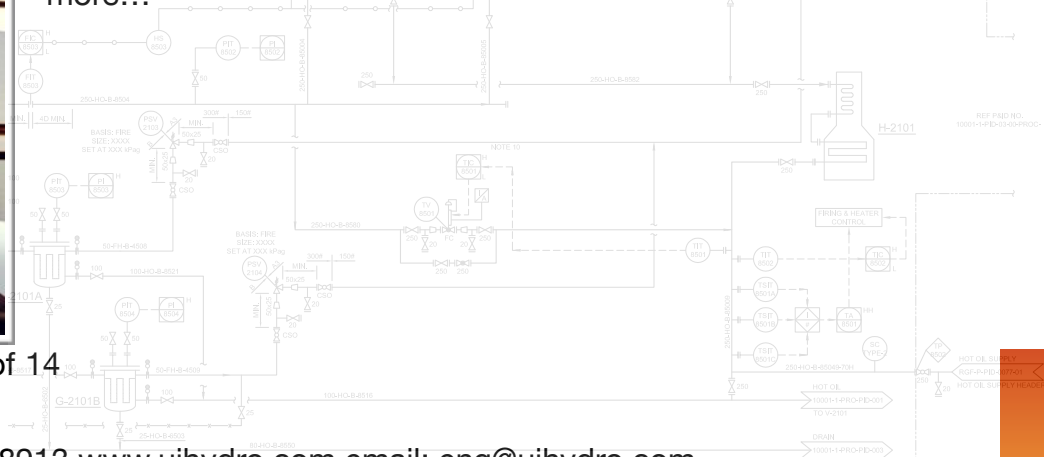
Combination of the extensive knowledge and experience with various processes, a workforce with a combination of operations and engineering experience and skills in conceptualizing solutions utilizing latest technology tools has allowed delivery of highly specialized and unique solutions to clients.

United International Hydro Engineering (UIHE) offers both remote, as well as onsite technical teams that have yielded profitable results for many well-known clients throughout the world.

United International Hydro Engineering (UIHE) has consistently added hundreds of thousands of dollars to the bottom line in the form of accrued savings for clients through specialized services like the flagship Intelligent Process Operations Guidance (IPOG) service. **United International Hydro Engineering (UIHE)**'s solutions help improve asset performance enabling "increased asset utilization" along with simultaneous "improved asset reliability" and "improved efficiencies"



United International Hydro Engineering (UIHE) has satisfied customers, both manufacturers and service providers across the globe, like WESTLAKE, Phillips 66, LyondellBasell, UOP (USA), SASOL (USA and South Africa), CHEVERON PHILIPS (Qatar and USA), TOTAL (France), TITAN, PETRONAS (Malaysia), INDORAMA (Indonesia), DAVY (UK), MITSUBISHI (Japan), ELEME (Nigeria), KENTZ, PETROFAC (Middle East), UHDE, SUN PHARMA and many more...



United International Hydro Engineering (UIHE) Solutions

Proactive Plant Asset Performance & Reliability Improvement (Remote/On-site)

State-of-the-art methodology Intelligent Process Operations Guidance (IPOG™) is applied for world-class operational excellence. Daily analysis and simulation applied to production units that benchmarks performance and guides operations to optimal*:

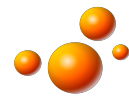
- Energy
- Productivity
- Cost of Production
- Reliability
- Throughput
- Yield

* gains of up to 20% improvement prior to capital projects are not uncommon

Specialized Technical Consulting Projects

- Model and data based retro analysis and what-ifs?
- Process Conceptualization, Development and Scale-up
- Plant pre-commissioning and commissioning activities
- Energy (electrical & thermal), Safety & Maintenance Audit
- Pinch Analysis – Thermal, Water, Hydrogen
- Root Cause Analysis & Debottlenecking Studies
- Advanced Process Control – specification and implementation
- Environmental Impact Assessment
- HSE compliance monitoring and analysis
- Emission Audits & Reduction
- Carbon Footprint Reduction and CDM assistance for carbon credits
- Operator & Engineer Training





Relief System Engineering & Risk Analysis

- Relief System Engineering
- Risk Analysis & Mitigation
- Corrosion Risk Analysis Study
- HAZOP
- HAZID
- LOPA

Simulation and Mathematical/statistical Modeling of chemical processes and equipment

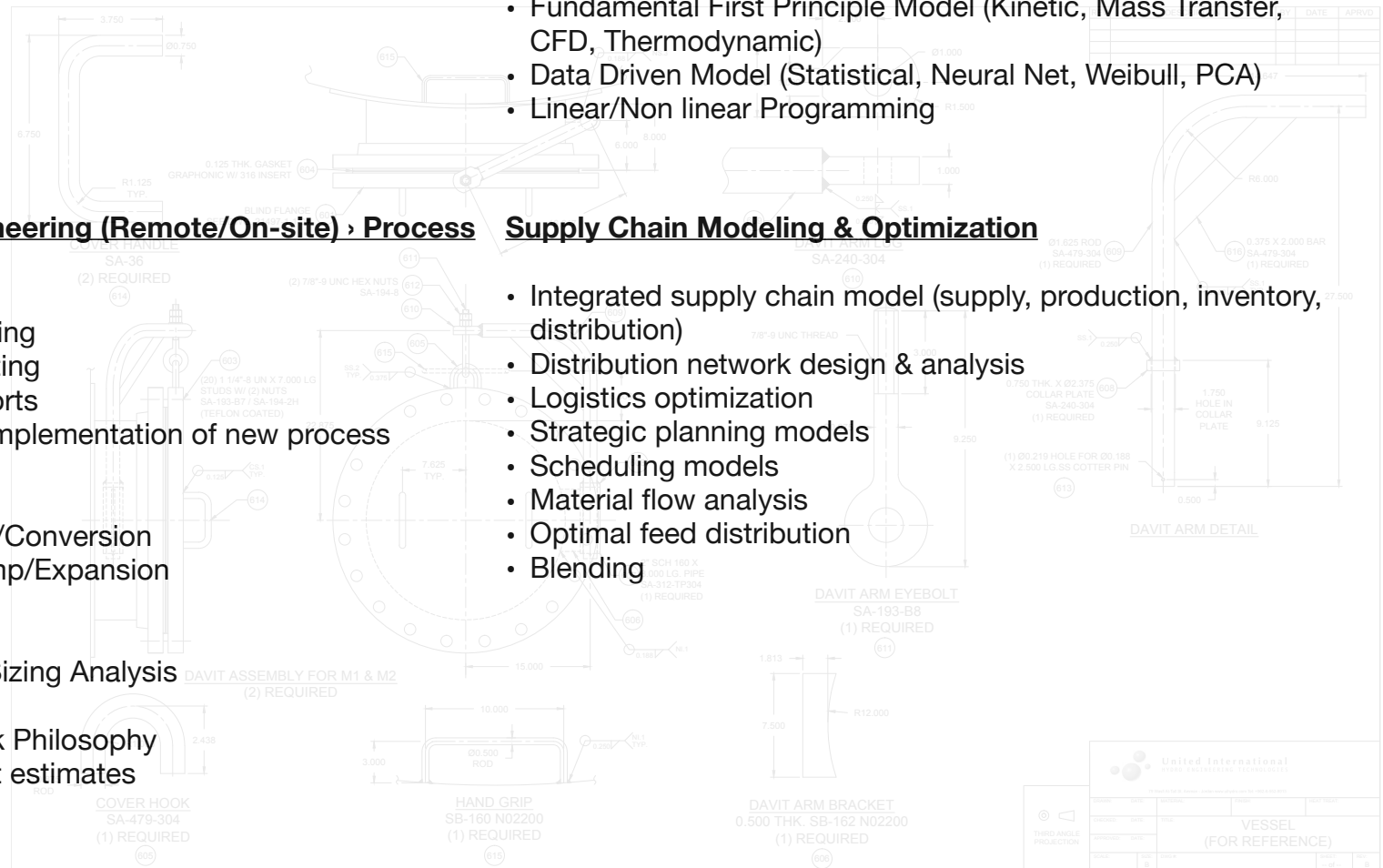
- Steady State Process Simulation & Optimization
- Dynamic Models for OTS, Predictive Control and transient operations like startups and shutdowns
- Fundamental First Principle Model (Kinetic, Mass Transfer, CFD, Thermodynamic)
- Data Driven Model (Statistical, Neural Net, Weibull, PCA)
- Linear/Non linear Programming

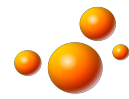
Basic and Detailed Engineering (Remote/On-site) › Process Engineering

- FEED & BASIC engineering
- Equipment Design & Rating
- Detailed Feasibility Reports
- Conceptualization and implementation of new process Schemes
- Implementation of new
- PFD/P&ID Development/Conversion
- De-bottlenecking/Revamp/Expansion
- Commissioning Support
- Procurement Support
- Flare header-KO Drum Sizing Analysis
- Radiation Analysis
- Control Logic & Interlock Philosophy
- Capital & Operating cost estimates

Supply Chain Modeling & Optimization

- Integrated supply chain model (supply, production, inventory, distribution)
- Distribution network design & analysis
- Logistics optimization
- Strategic planning models
- Scheduling models
- Material flow analysis
- Optimal feed distribution
- Blending





Process:

- P & ID DEVELOPMENT
- PROCESS DATA SHEET
- PRESSURE DROP SINGLE/TWO PHASE
- PIPE LINE SIZING/HYDRAULICS
- SIZING OF EQUIPMENT
- THERMAL DESIGN OF HEAT TRANSFER EQUIPMENT
- RELIEF VALVE SIZING PER API 520
- VALVE SELECTION & SIZING
- FIRE FIGHTING SYSTEM DESIGN
- COOLING WATER SYSTEM DESIGN
- COMPRESSED AIR SYSTEM DESIGN
- HAZOP STUDY

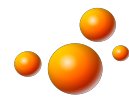


Mechanical Engineering (Static Equipment / Rotary Equipment / Package Units)

- Detailed Mechanical Design
- Detailed Engineering Drawings
- Preparation of specification

Electrical Engineering

- Basic System Studies
- Hazardous Area Classification
- Cable, Lighting And Earthing Layouts
- Switchyard & Substation design
- SINGLE LINE DIAGRAM (SLD)
- EQUIPMENT SIZING
- EQUIPMENT LAYOUT DIAGRAM
- EARTHING/LIGHTNING PROTECTION
- CABLE SIZING CALCULATION
- CABLE RACK ROUTING
- LIGHTING CALCULATIONS AND LAYOUTS
- CABLE SCHEDULE AND INTERCONNECTION DIAGRAM
- PREPARATION OF BILL OF QUANTITIES (BOQ)
- AS BUILT DRAWINGS



Piping Engineering

- Plot Plan Development
- Stress Analysis And Calculations
- Detailed routing and Isometrics
- Bill of Quantities
- 3 D Modeling (PDS & PDMS)
- PLOT PLAN & EQUIPMENT LAYOUT
- PIPE ROUTING, LAYOUT & GA DRAWING
- STRESS ANALYSIS
- PIPE SUPPORT SELECTION & DRAWINGS
- PIPING ISOMETRICS
- MATERIAL TAKE OFF
- DATA SHEET FOR VALVE & BOUGHT-OUT ITEMS
- PLANT MODELING IN 3D

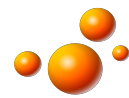
Civil Engineering

- Architectural Design
- RCC Design
- Structural Steel Design
- General Civil Design

Engineering Specifications:

- Plant Layout
- Piping Design
- Piping Material Specification
- Pipe Supports
- Insulation Design





Instrumentation & Control

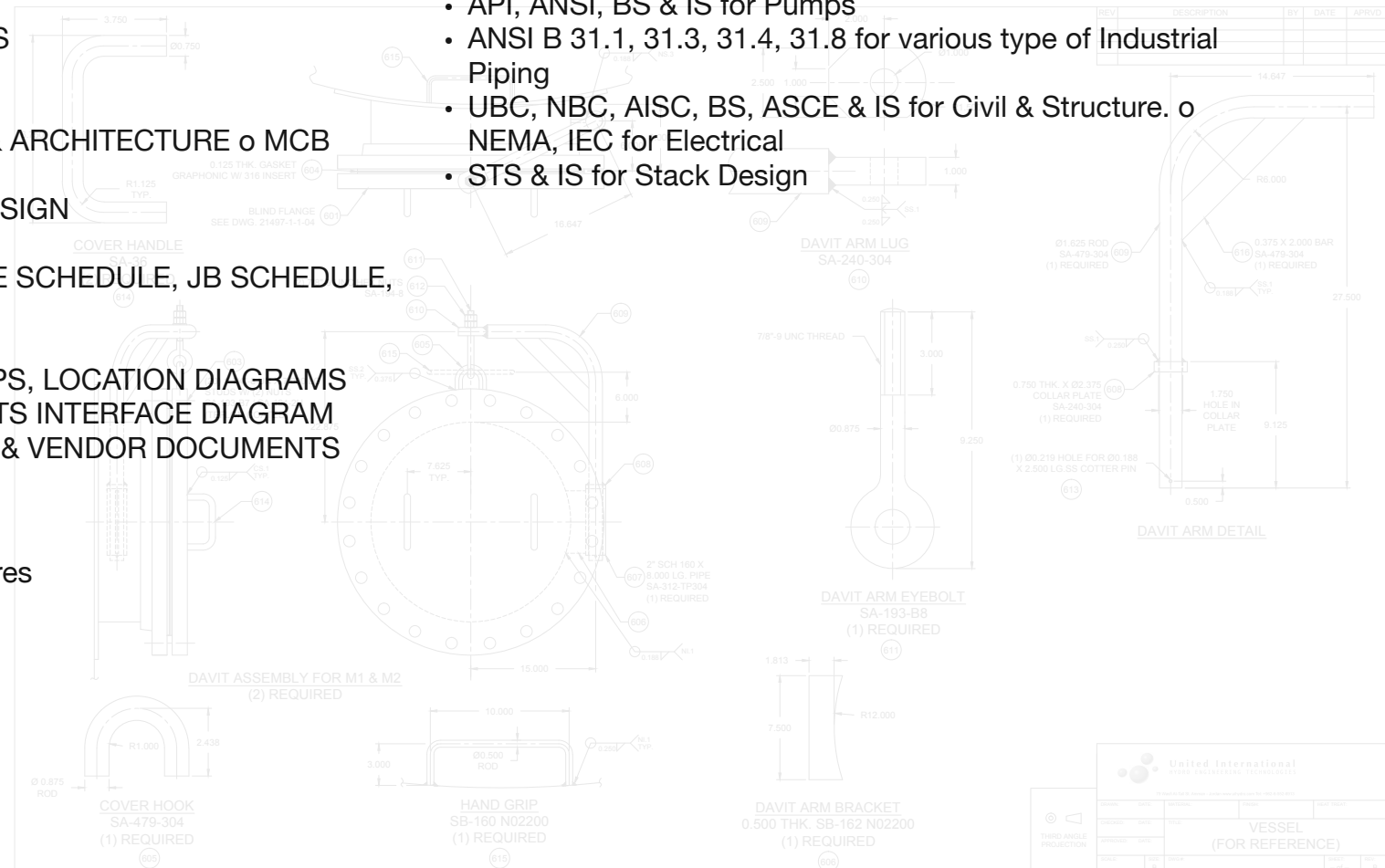
- Instrument specs
- Control systems
- Cable layouts & schedule
- Instrument sizing
- Hook up diagram
- Controller tuning
- FUNCTIONAL DESIGN BASIS
- SIS DESIGN BASIS
- FAT/SAT PROCEDURE
- CONTROL ROOM LAYOUT & ARCHITECTURE o MCB LAYOUT
- FTP & SYSTEM CABINET DESIGN
- 3RD PARTY INTERFACING
- INSTRUMENT INDEX, CABLE SCHEDULE, JB SCHEDULE,
- IO INDEX
- INSTRUMENT SIZING
- LOOP DIAGRAMS, HOOK UPS, LOCATION DIAGRAMS
- ELECTRICAL – INSTRUMENTS INTERFACE DIAGRAM
- DATASHEET PREPARATION, & VENDOR DOCUMENTS

Documentation

- Standard Operating Procedures
- Drafting P&IDs in AutoCAD
- Commissioning manuals

Code & Standards

- ASME SECTION VIII DIV. 1, 2 , PD 5500, IS 2825 for Pressure Vessel
- API 660, 661 & TEMA for Shell & Tube and Air Cooled Heat Exchangers.
- API 620, API 650 & IS 803 for Storage Tanks
- API, ANSI, BS & IS for Pumps
- ANSI B 31.1, 31.3, 31.4, 31.8 for various type of Industrial Piping
- UBC, NBC, AISC, BS, ASCE & IS for Civil & Structure. o NEMA, IEC for Electrical
- STS & IS for Stack Design

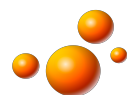




Industries:

United International Hydro Engineering (UIHE) expertise is spread across the following industries:

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|---|--|---------------------------------|
| • Water Desalination | • Sewage Treatment | • Wastewater Treatment |
| • Odor Control | • Chlorination/ Disinfection | • Petrochemicals |
| • Oil Refining | • Oil and Gas | • Ethylene derivatives |
| • Aromatics | • Polymers | • Linear Alkyl Benzene |
| • Propylene derivatives (DMK, IPA, MIBK, MIBC, NBA, IBA, 2EHA, ACN) | • Aromatic derivatives (Cumene, Phenol, LAB) | • Intermediates (PTA, DMT, PIA) |
| • Synthetic Fibers (Polyester, Nylon) | • Specialty Chemicals (HTPB) | • FMCG (SCM) |



Client List

Some of our esteemed clients are:

- | | | | | |
|---------------------------------|-----------------------------|----------------------------|---------------------------|----------------------------------|
| • Titan Petrochemicals | • Dodsai | • Invensys | • LyondellBasell | • Chevron Phillips |
| • KBC | • Total | • Technip | • Exxon Mobil | • QChem |
| • Sasol | • Uhde | • SIPCHEM | • P&G | • Tessengerlo Group |
| • Mitsubishi | • Lonza | • British Gas | • UOP | • Siemens-Berwanger |
| • Westlake Chemical Corporation | • Holcim | • Commonwealth | • Davy Process Technology | • Kentz Engineers & Constructors |
| • SNC Lavalin | • HPCL | • BPCL | • Chemplast Sunmar | • Indorama Ventures |
| • Sajjan India | • Deepak Fertilizers | • Aarti Industries | • Jubilant Lifesciences | • IGPL, India |
| • Deepak Phenolics | • Petrokemya | • Farabi Petrochemicals | • Sun Pharma | • Pidilite |
| • Paradip Phosphates | • Conoco Phillips | • Flint Hills | • Sunoco | • Marathon |
| • Lazarus | • Petronas | • Koch Industries Inc | • North Atlantic | • Sinclair |
| • ELEME Petrochemicals | • Valero Energy Corporation | • Frontier Oil Corporation | • Yokogawa | • SABIC |
| • Tasnee | • ADNOC | • Lloyds | • Qatar Gas | • Qatar Petroleum |
| • Petrofac | • Toyo Engineering | • MRPL | • GAIL | • Reliance Industries |
| • Tamil Nadu Petroproducts | • Essar | • CTCL, Taiwan | • Vinati Organics | • Hindustan Unilever |

United International Hydro Engineering (UIHE) technology is a state of the art office equipped with latest tools & software:

United International Hydro Engineering personnel have varied experience across industries, geographies, educational qualifications etc.

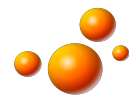
We have people from across the industries such as Oil & Gas, Refinery, Petrochemicals, Aromatics, Coal Gasification, Polymers, and Specialty Chemicals etc. Our employees have previously worked in Middle East, USA, South East Asia, Europe and India.

United International Hydro Engineering has on its rolls doctorates (Ph.D), masters, graduate engineers & energy auditors.

Engineers with specialization and experience in:

- Process engineering
- Civil, mechanical
- Instrumentation
- Electrical
- Piping
- Relief system evaluation
- Risk analysis
- Basic & Detail engineering
- Modeling & Simulation
- Special equipment design
- Linear programming
- Statistics
- Feasibility studies, costing
- Project management
- Commissioning
- IT
- Drafting





Design Softwares

- RO Projection
- AUTOCAD
- IX Softwares
- Aspen
- Hysys
- HTRI / HTFS
- PSV PLUS
- FRNC
- PDMS
- STADD
- PROSTEEL
- CAESAR-II
- ETABS
- PV-ELITE

