



INGENIOUS INC
*Ingenious Solutions for the
 Process Industries*

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Advanced Consulting Solutions

Ingenious Inc specializes in engineering consulting & advanced solutions to the chemical process industries. Using our global engineering centers, our experienced team has executed projects in oil & gas, refining, chemical and pharmaceutical industries. Our focus areas in consulting include



Area of Expertise	Software & Tools Used
Process simulation, engineering design, conceptual studies, & basic engineering	ChemCad, Aspen Plus, PRO-II and Hysys
Heat exchanger & equipment rating, sizing, hydraulics and design	CC-Therm, custom templates, HTRI
Remote plant monitoring, blend control and advanced control applications	Pro-Online, Scada systems, Third party software
P&IDs & Detailed engineering	AutoCAD & Cadsim plus and other CAD software
Production planning and refinery configurations	ProPlan planning software
Production scheduling and inventory management	ProSched scheduling system and custom scheduling application development
Dynamic simulation, Operator training systems and dynamic troubleshooting of columns and flare relief systems	Unisim, Cadsim PLUS, Hysys, Indiss, ProDyn, ChemCad dynamics
Batch distillation column design	CC-Batch
Batch reactor design and simulation	CC-ReACS
Pulp & paper and waste water recovery simulation and studies	Cadsim plus

ProjectSummary(Partiallist)

Consulting Projects	Client, End user
Basic and detailed engineering for Hydrotreater units	Major EPC firm, Lion Oil, Stone & Webster, Marathon
Process package for Delayed coking unit	ABB Lummus Technology
Process re-rating and revamp for DHDS unit	Valero Corporation
Refinery revamp project: Basic and detailed engineering	Major EPC firm, Total Refining
Plant optimization and alternate product study	Bombay Dyeing Ltd.
Off-sites and Utilities project	Stone & Webster, Marathon Oil
Safety relief sizing, P&ID detailing, process simulation	Stone & Webster, SK Corporation
Basic engineering for CDU/VDU units	Major EPC firm
Equipment hydraulics, sizing, PFD, P&ID for various refinery units	Shaw Stone & Webster



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Consulting Projects	Client, End user
Development of process simulation model for amine treating process for oil & gas company	Indonesia Oil & Gas Academy
Develop lube oil simulation & Linear Programming model using ProPlan software	US Government
Develop isometrics & P&IDs for Alkylation & esterification processes	Celerity3
Develop isometrics & P&IDs for skid facility for oil & gas platforms	Zeppelin Systems USA
Feasibility study and process design of BTX facility	GTC Technology Houston
Feasibility study and process design of Paraxylene facility	GTC Technology Houston
Dynamic simulation of flare relief system	KBR-Halliburton
Feasibility study and process design of PTA facility	GTC Technology Houston
Feasibility and production planning study for national oil refinery	Petro-Ex Canada
Feasibility and refinery configuration study & training	Suncor Energy USA Inc
Refinery configuration study for grassroots refinery	Indian Institute of Petroleum
Training and refinery crude options study	Reliance Industries Ltd
Basic engineering study for product alternatives for DMT facility (Dimethyl terephthalate)	Garware Chemicals Ltd
Optimization of Wash Water Requirement in an Ethylene Oxide Purification System	Vinyl Chemicals Ltd
Design of Absorption Refrigeration Plant	Vinyl Chemicals Ltd
Process Design for separation of Ethanol and Water from Ethyl Acetate	Vinyl Chemicals Ltd
Minimizing waste stream in a Distillery	Confidential
Process Design for Separation of Cinnamyl Alcohol and 3-Phenyl 1-Propanol	Laxmi Organics Ltd.
Process design and simulation of by-product stream for ethylene recovery system. Removal of argon and separation of ethylene with hydrocarbons. At least 90 % recovery of ethylene.	Vinyl Chemicals Ltd

Training Solutions	Client, End user
Training system development	ExxonMobil
Training simulator and system solutions	Jubail Industrial System
Training & e-learning solutions	Yanbu Industrial System
TEG Dehydration unit training simulator	Kuwait University
LNG Dynamic training simulator	KBR, Tangguh LNG
FCC unit training simulator	Reliance Industries Ltd.
Hydrotreater and reformer training system	PPE, Ventura Refining
Dynamic simulation project for Main air blower and compressor sections of FCC	ABB Simcon
Dynamic simulation project for oil & gas platform	PEMEX
Dynamic simulation project for Naphtha Hydrotreater Unit & GOHT model	Confidential client
Dynamic simulation project for Delayed Coker Unit	Pertamina, Indonesia



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Training Solutions	Client, End user
Dynamic simulation project for 2-stage Hydrocracker Unit	Pertamina, Indonesia
Dynamic simulation project for Propylene Refrigeration Unit	Dow Canada
Dynamic simulation and testing of hydrogen plant	Honeywell for end-user, SOHAR refinery in Qatar
Integration of dynamic simulation model for process control with e-learning system	NSF Grant-San Juan
Dynamic simulation of multiple train compressor system	Honeywell
Dynamic simulation project for FCC Plant: Main Fractionator and related strippers	PETROBRAS using RSI's INDISS technology
Dynamic simulation project for Naphtha splitter tower, Gasoline Treater section	Honeywell for confidential end-user
Dynamic simulation project for Ethylene Glycol system in a Gas plant	Honeywell for confidential end-user
Dynamic simulation project for Reverse Osmosis Unit in a Gas Plant	ABB Simcon for end-user, Saudi ARAMCO
Dynamic simulation project for Pulper in a Pulp/paper Mill	DOMTAR, Montreal
Dynamic simulation project for Crude Units, Crude Storage and pumping facility	ABB Simcon for end-user, Saudi ARAMCO
Dynamic simulation project for Deethanizer, Ethylene Stripper and Debutanizer	ABB Simcon
Dynamic simulation project for HF Alkylation Unit, with Mitigation system	Trident Computer resources for PEMEX as end user
Dynamic simulation project for MTBE Plant	PDVSA, Venezuela
Dynamic simulation project for Sulfur Recovery Unit-Claus Process	ABB Simcon for end-user, Saudi ARAMCO
Dynamic simulation project for Acetaldehyde removal unit of the Acetic acid plant	Alkyl Amines Chemicals Ltd.

Clients (Global Fortune 500)

Partial list of clients include:

- > KBR-Halliburton
- > ABB Lummus Technology
- > Valero Corporation
- > Fluor Enterprises
- > Shaw-Stone & Webster
- > Reliance Industries Ltd
- > Honeywell Inc
- > ExxonMobil Corporation
- > ConocoPhillips Inc
- > Indian Oil Corporation
- > Petronas Malaysia
- > Suncor Energy USA Inc
- > Qatar Petroleum
- > Invensys Solutions Inc
- > Celerity3 Engineering
- > Kuwait Institute of Scientific Research
- > RSI, France (part of IFP)
- > Axens Technology
- > Arabian Gulf Oil Company-Libya
- > Kuwait University