

ED Process

ALTERNATIVE FUEL SOLUTIONS

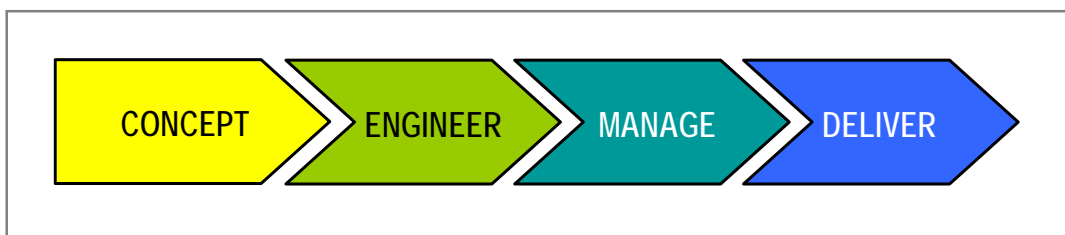
**“Global Solution Provider
For Alternative Fuels”**

COMPANY PROFILE



UNITED KINGDOM | USA | CANADA | INDIA | AUSTRALIA

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- 3. CAPABILITIES**
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INTRODUCTION

ED Process Technologies (www.edprocess.com) is a Company promoted by Pyramid E&C Group with the aim of providing Quality Technology, Engineering and Project Construction Services for Beverage Alcohols and Alternative Fuels Industry (primarily ethanol and biodiesel).

CORE COMPETENCE

- Engineering
- Procurement & supply
- Project Construction
- Start-up & Commissioning

INDUSTRIES SERVED

- Beverage & Fuel Ethanol from renewable sources
 - Sugar Cane & Molasses
 - Grains
 - Cassava
 - Potato & other Starch based substrates
- Biodiesel from virgin and used vegetable oils & fats
- Biogas Plants

Pyramid E&C (www.pyramidenc.com) with Head Office at UK and offices in various countries is a fast growing, multicultural, global company providing Engineering, Project Management and Lump Sum Turnkey solutions for Energy and Chemical Industries.

Pyramid E&C founded in 1995 has an impressive track record of globally delivering more than **300 projects** and employs about 600 personnel across various global locations.

Services

- Process Technology Supply
- Multidiscipline Detailed Engineering
- Project Management
- Lumpsum Turnkey Contracts for Plant Construction
- Start-up and Commissioning
- Upgradation and Efficiency Improvement for existing Facilities
- Support for Plant Operations

VISION

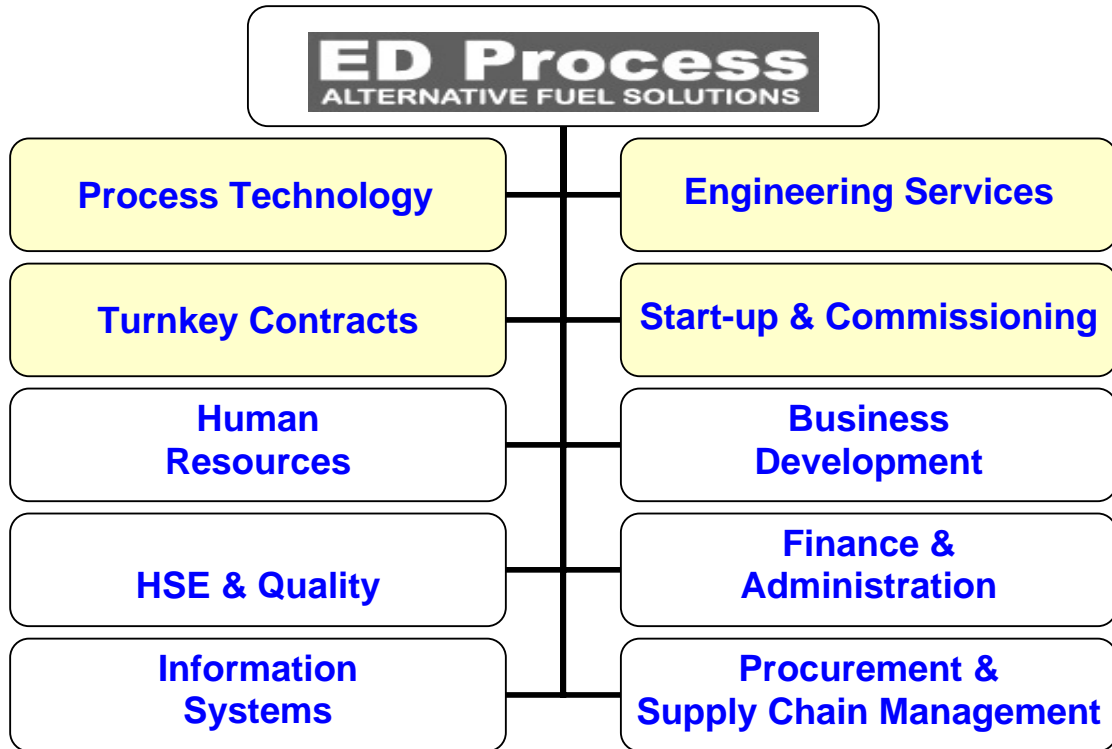
- To be a Key Player in Energy Sector
- Best value to Customers
- Deliver Quality Solutions Globally
- Leadership by Innovative Approach
- Growth by Engineering Excellence

ED Process Technologies management is led by a team of highly experienced engineering professionals from beverage alcohol and alternative fuels industry. The management system is based on values based process approach with key performance indicators (KPI) allocated for all the business activities. Company believes in total transparency and ethical dealings in all its business activities.


Ethics

Integrity, transparency and enhancing Client satisfaction are the guiding business principles in all our transactions. ED Process Technologies strives to be a good corporate citizen and fully comply with the law of the land in various countries it works. ED Process Technologies shall continue to maximize value creation for its clients, employees, suppliers and stakeholders in a sustainable manner.

ORGANISATION



GLOBAL LOCATIONS

Head Office	ED Process Technologies Limited 1000 Great West Road, Brentford, Middlesex London TW8 9HH, United Kingdom	
Offices	London, UK Calgary, Canada Mumbai, India Houston, USA	
Procurement Centres	UK, USA, Canada, Dubai, India, Singapore	

ED Process Technologies provides complete Concept to Commissioning Solutions for beverage alcohols (rectified spirit, high grade neutral alcohol), renewable fuels like bioethanol, biodiesel and biogas plants, including Process Technology, Detailed Engineering, Plant Construction Management, Lump Sum Turnkey Supply, Start-up and Commissioning, Efficiency Improvement and up-gradation of existing facilities.



ALTERNATIVE FUELS

- Beverage Alcohol, Industrial & Fuel Ethanol Plants from various feed-stocks like cane juice, molasses, grains, tubers, etc.
- Biodiesel Plants from fresh and waste vegetable oils, animal fats, fish oil, etc.
- Biogas Plants generating methane rich biogas from high BOD/COD Industrial Effluents

ETHANOL PLANTS

- Feed Handling and Storage
- Feedstock Preparation Systems
- Fermentation Systems
- Distillation Systems
- Dehydration Systems
- DDGS Systems
- Effluent Treatment Systems
- CO₂ Recovery Systems

We provide Ethanol Production facilities from various feed-stocks like cane juice, molasses, grains (corn, wheat, rice, sorghum, etc.) and tubers (cassava/ tapioca, potato, etc.). The plants are highly automated and thermally integrated for consistent operation with high process efficiencies.



Highly efficient Batch or Continuous Biodiesel Plants, for wide range of production capacities, with systems for methanol recovery and glycerol separation. Plants are modularized to minimize on site work, save on execution time and ensure quick Start-up with minimal operating costs.



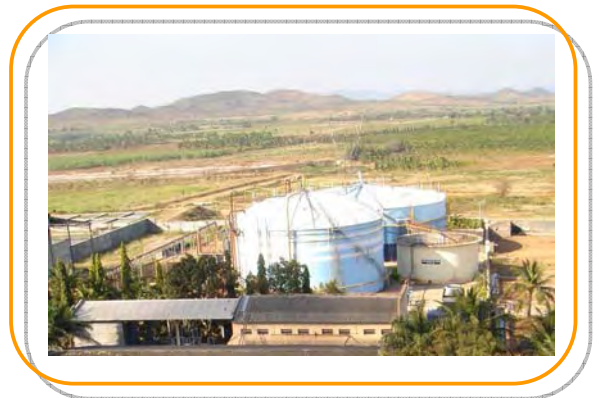
BIODIESEL PLANTS

- Plants for wide range of feed-stocks like fresh and waste vegetable oils, animal fats, fish oil, etc.
- Skid Mounted Modular Plants for smaller capacities
- Continuous Synchronized Plants with methanol and

BIOGAS PLANTS

- Clean burning renewable fuel from industrial waste
- Methane rich biogas can be fired in boiler, bringing down fuel costs for the plant
- High Rate Reactor having lower hydraulic retention time
- Automated Step Feeding System for excellent contact between organic matter and biomass,
- Covered Digester

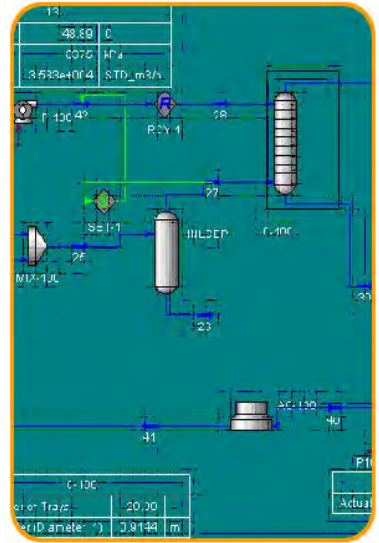
Biogas Plants based on with UASB (Up-flow Anerobic Sludge Blanket) Digester, which has distinct advantages as compared to other systems. System offers higher generation of biogas by higher reduction of BOD/COD with short retention time and absence of any fill media or mechanism inside the digester.



ENGINEERING CAPABILITIES

PROCESS ENGINEERING

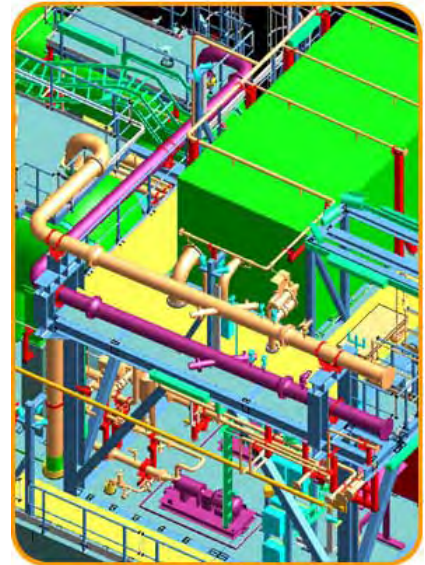
- Process Design and Simulation
- Heat and Mass Balance, generation of PFD and P & IDs
- Specification for various equipment and package systems
- Design of plant hydraulics and pumping systems
- Process Design of Distillation Columns, Separators, etc.
- Heat exchanger thermal sizing and flow induced vibration analysis
- Design of Fired Heaters and Waste Heat Boilers
- Pipeline Surge and Slug Flow Analysis
- HAZOP & Loss Prevention Study
- Commissioning, Troubleshooting and Revamp assistance.



Software: HYSYS, HTFS, PipeNet, Smart Plant

PIPING ENGINEERING

- Engineering of In-plant Piping system
- Piping Flexibility and Stress analysis
- Composite Dynamic analysis of Piping, Equipment and Structure system
- Plant 3-D Modeling and clash detection
- Generation of Piping Layouts and Isometrics
- Piping material and Support Specifications
- Revamp and modification engineering



Software: PDS, PDMS, AutoCAD, CADWorx, CAESAR

ENGINEERING CAPABILITIES

MECHANICAL ENGINEERING

- Design of complete range of process equipment e.g. Vessels, Heat Exchangers, Columns, Cone roof, Floating roof and Dome roof API Tanks, Silos, Fired heaters and, Unfired Boilers, Power plant equipment.
- Mechanical Design and detail engineering as per ASME Sec. VIII Div. 1 & 2, ASME Sec. III, API650, API 620, AD Merkblatter, PD: 5500, TEMA, EJMA, NUREG, IBR, Indian Standards etc.
- Design by analysis for critical service equipment
- Stress, Thermal Analysis and Fatigue life evaluation of equipment using Finite Element Analysis.
- Generation of Data Sheets and Drawings.



Software: - ANSYS, PV Elite, Codecalc, E-Tank

CIVIL & STRUCTURAL ENGINEERING

- Design of Technological Structures
- Development of Industrial facilities and related civil work
- Stress & fatigue analysis of Structures using Finite Element Analysis.
- Structural analysis & detail engineering of equipment
- Design and Engineering of Skids and Modular Structures
- Design of special foundations for large process equipment
- Structural 3-D Modelling and automated fabrication drawing generation



Software: - STAAD Pro, ANSYS, X-Steel, ProSteel

INSTRUMENTATION

- Instrument Data Sheets and Index
- Logic Development and preparation of Cause & Effect diagrams
- DCS/PLC engineering & I/O List
- Preparation of Field Instrument and control panel specifications
- Preparation of inter lock diagrams and loop drawings
- Preparation of JB and cable schedule
- Layout for Instrument / JB / Cable trays for Field & Control room
- Installation, mounting and hook up drawings
- Communication Network Design
- Preparation of Air and Power distribution scheme
- Sizing of Relief Valve / Control valve / orifice plate



Software: SmartPlant , INTOOLS, INSTRUCALC

ELECTRICAL

- Estimation of Power requirement and evolving Single Line Diagram for Power Distribution system and Illumination Engineering
- Specifications and schedule of quantities for Electrical Equipment.
- Cable schedules and Termination Schedules.
- General Arrangement & Civil Input Data for Switchyards, Substations, Load Dispatch Centres and Control Rooms
- Short Circuit Study & Relay Setting recommendations
- Hazardous Area Classification Drawings
- Preparation of Layouts for Project Execution / Statutory approvals e.g. Equipment layouts, Cable Tray / Trench Layouts, Earthing & Lightning Protection Layouts and Lighting Layouts including Distribution Schedules



Software: SmartPlant, E-TAP. CABSYS

SPECIAL APPLICATIONS

FINITE ELEMENT APPLICATIONS

- Structural and Thermal Stress analysis
- Structural Thermal Coupled Field Analysis
- Composite Analysis
- Fatigue and Vibration Analysis
- Transient & Non Linear Stress Analysis
- Qualification of components of geometry not covered by design codes
- Strength verification of Damaged or malformed components

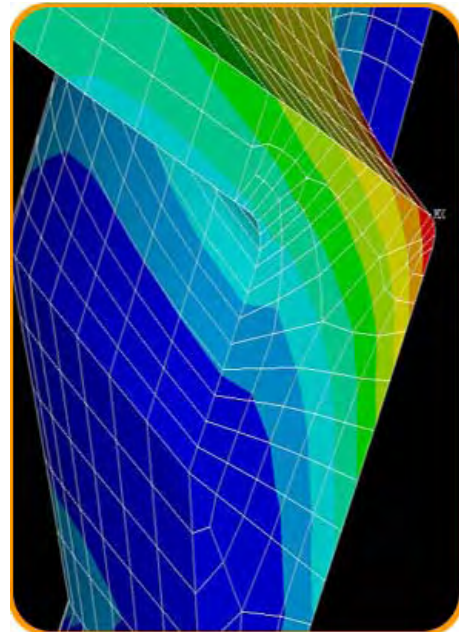


COMPUTATION FLUID DYNAMICS

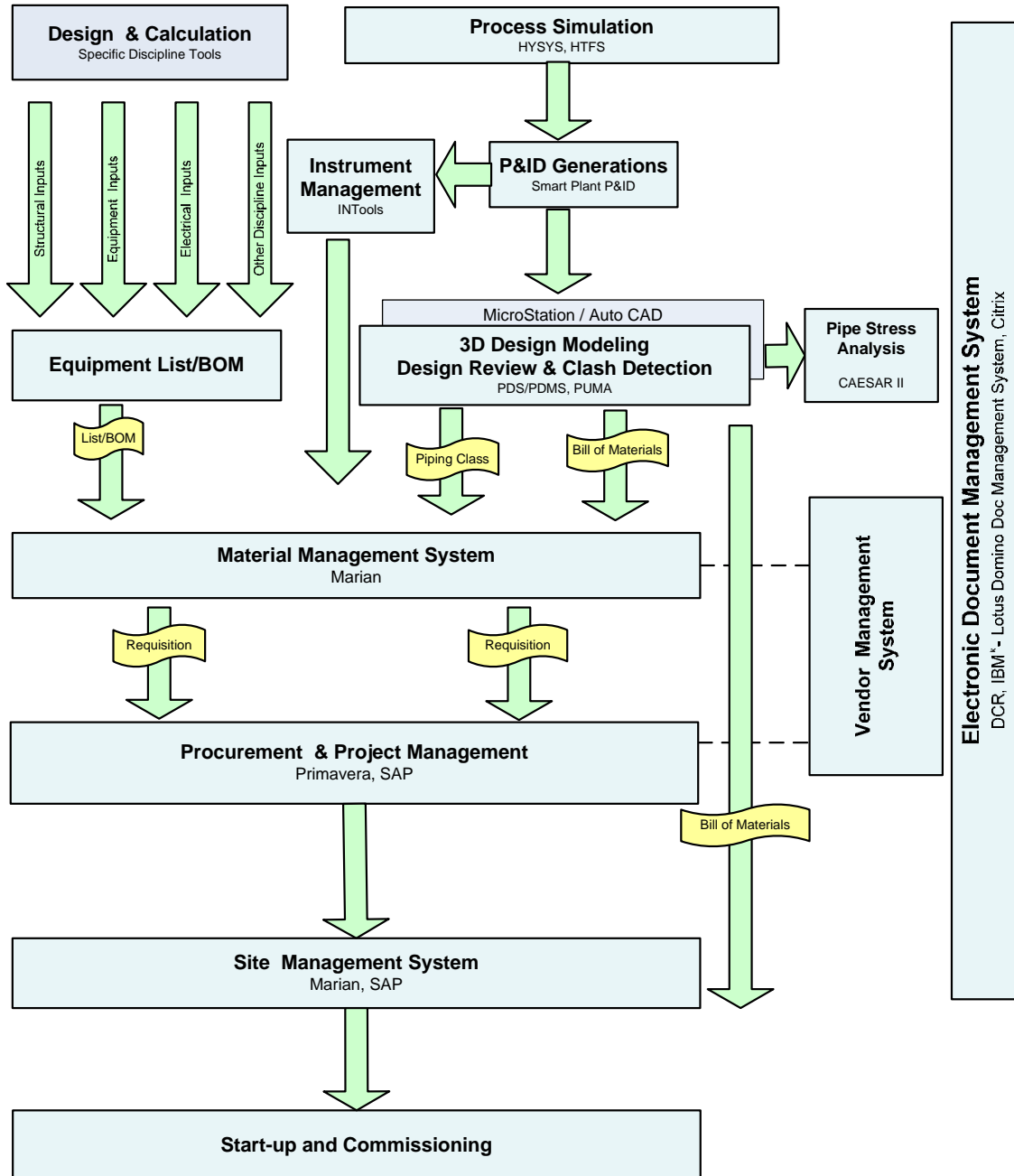
- Heat Transfer and Fluid Flow Studies
- Two / Three Phase Separation studies
- Mass Transfer Phenomenon Studies

DESIGN APPRAISALS

- Static Equipment
- Rotating Equipment
- Special Equipment
- Steel & RCC Structures



ED Process has a clearly defined workflow and discipline interface procedures critical for multidiscipline, multi location engineering delivery.



PROJECT MANAGEMENT

ED Process Technologies strives for excellence in the execution of all its projects with Quality, Time, Cost and safety as the prime parameters.

All global offices and procurement centres are networked for fast effective Data Management and Communication.

Project Management is an integral part of all projects with varied scope, i.e., Design Engineering, EPC, LSTK project.



Qualified professionals with adequate experience are mobilized for effective Project Management & Control with respect to time and costs. Projects are delivered using established Project Management tools / techniques such as Grant Charts, Critical Path Method (CPM) etc.

Project Management & Control Philosophy

- Strategy Development
- Basic and Detailed Engineering
- Budgeting and Cash Flow Estimation
- Tendering & Bid Evaluation
- Construction Management & Quality Assurance
- Planning, Monitoring and Control
- Health, Safety and Environment Management
- Start-up and Commissioning
- Critical Review of Plant Performance and compilation of Observations

PROJECT INFORMATION SYSTEM

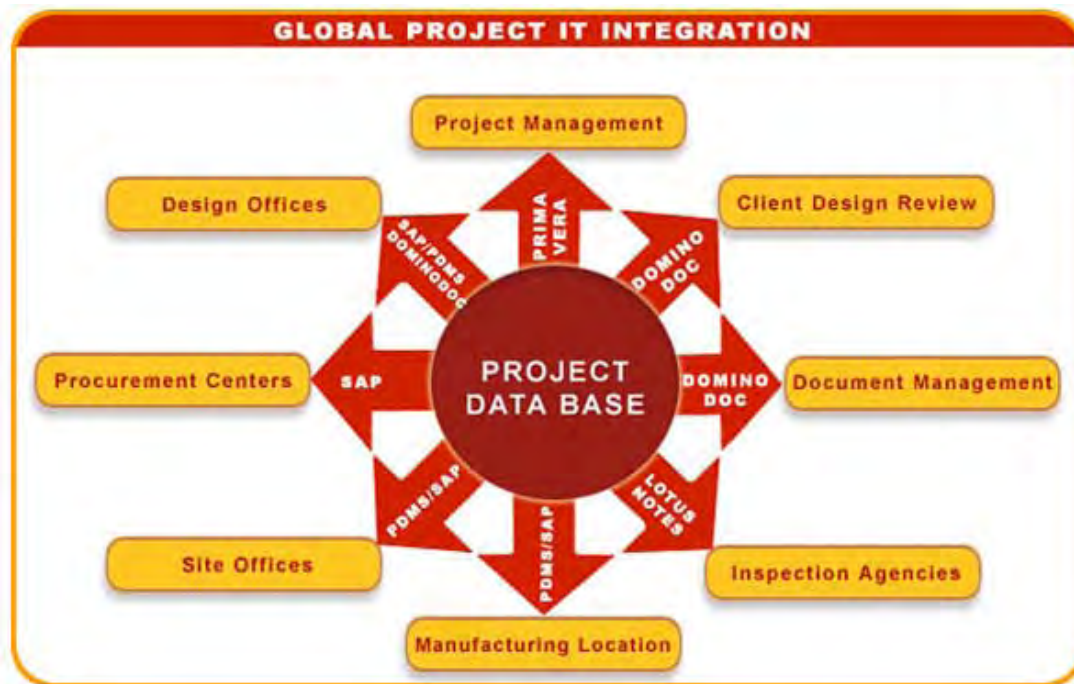
ED Process Technologies strives for effective Project Management by utilizing state-of-the-art IT infrastructure.

Primavera® Web based Project Management Tool is effectively utilized across all the projects. This tool facilitates project planning, resource allocation and provides the details of Project status enabling efficient project monitoring / management.

IBM® Lotus Domino.Doc is effectively and securely deployed for Documentation Management System. Internal as well as external E- Mail communication is effectively managed through the IBM® Lotus Notes

All critical business processes are mapped and integrated through the deployment of **SAP® ERP**.

All IT driven Project Management tools and IT infrastructure are configured for reliability and maximum productivity.



CONSTRUCTION MANAGEMENT

All construction activities as per the design and customer requirements are carried out by ED Process utilizing qualified subcontractors.

ED Process forges alliance with qualified local construction firms at the location of project. All construction activities are controlled by a multidiscipline construction management team.



Construction Activities include

- ❖ Construction Planning and Scheduling
- ❖ Quality Management
- ❖ Site coordination and Reporting
- ❖ Store Management and Material Reconciliation
- ❖ Safety Supervision
- ❖ Pre-startup Inspection and Approval
- ❖ Start-up and Commissioning
- ❖ Post Commissioning Review



HEALTH, SAFETY, ENVIRONMENT & QUALITY

Management is committed to continual enhancement of Quality, protection of the Environment and consideration of Health & Safety in all aspects of work, to ensure the highest standards of products and services to our clients worldwide.

HSE & Quality aspects are integral to and of paramount importance to our business operations to ensure delivery of Environment-friendly, Safe, and Quality solutions. To achieve the same, we follow internationally established practices, guidelines or principles such as Plan-Do-Check-Act (PDCA) Cycle, Process Approach, Systems Approach, 8-Management Principles etc.

System is developed around state-of-the-art IT infrastructure for effective and efficient deployment of the HSEQ Management System.

ED Process Technology Policy is to provide competitive, safe and innovative engineering solutions in a lawful, ethical and socially responsible manner.

ED Process Technology believes that Occupational Health and Safety of personnel, protection of the Environmental and Customer Satisfaction are paramount importance to business performance.

ED Process Technology is committed to achieve excellence in business by establishing Occupational Health, Safety, Environmental and Quality Management Systems to achieve following objectives.

- Continuously acquire knowledge and improve working environment
- Comply with applicable legal and statutory requirements
- Prevent accidents, injuries and illness in all aspects of operation
- Prevent wastage and contribute towards environmental protection
- Provide training, supervision and support to upgrade the employee skills

ED Process Technology Management shall strive to effectively implement and continually improve the systems through participation and support of its employees, suppliers as well as customers.

Date: January 02, 2007

Place: Thane, India

-Sd-

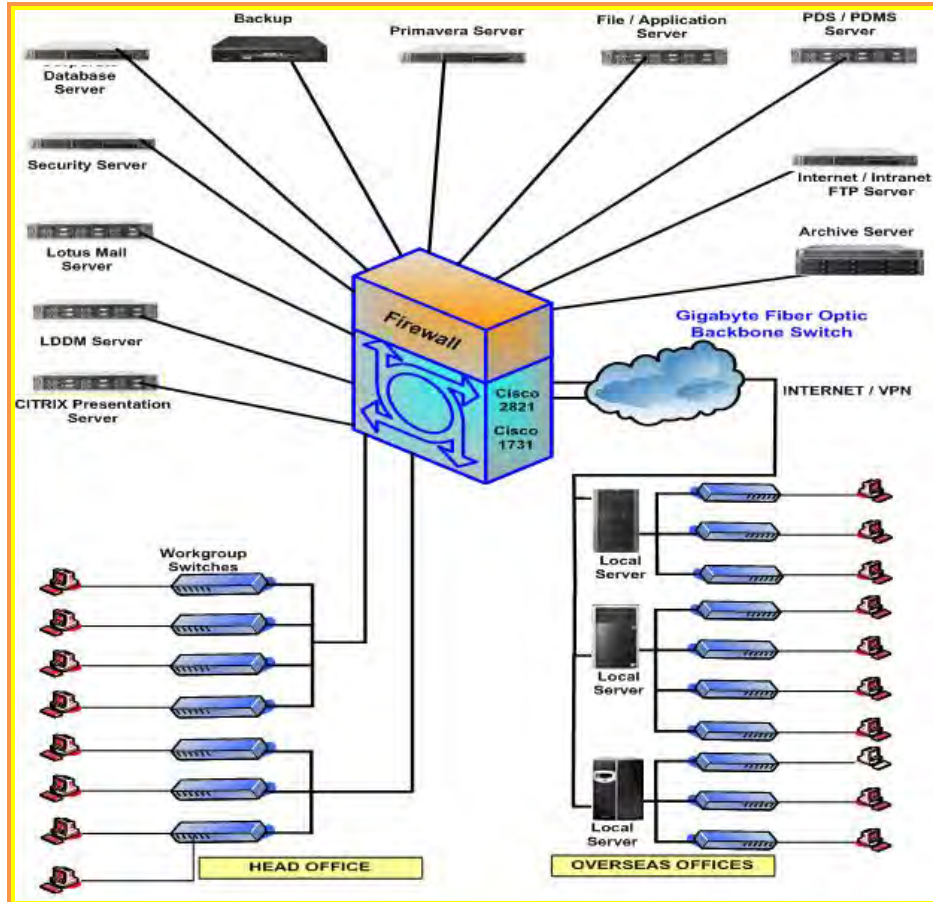
Managing Director

HSE & Quality Policy

INFORMATION SYSTEM

ED Process Technology maintains state-of-art IT Infrastructure which contributes to overall excellence of all Business Processes. The information system described has following major components:

NETWORK TOPOGRAPHY

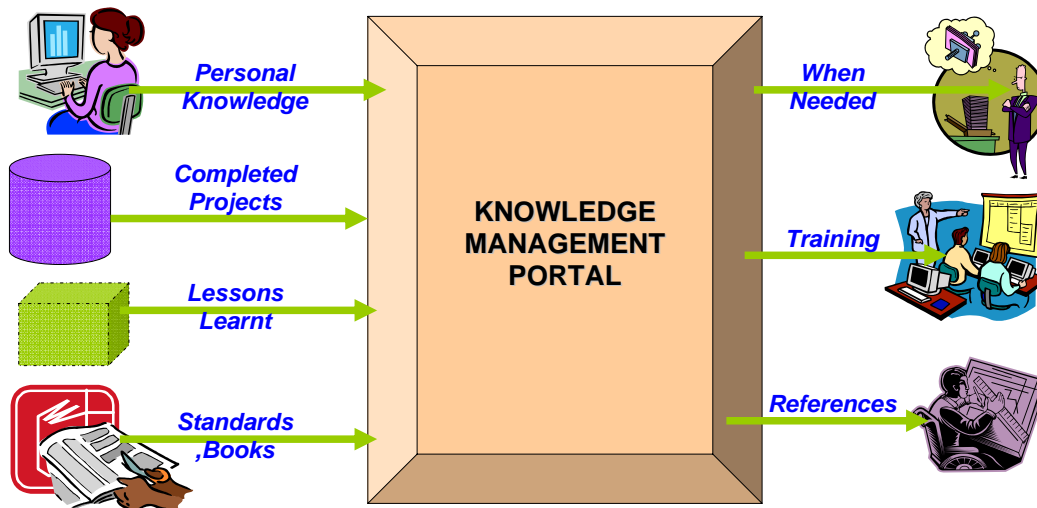


HARDWARE		
File Servers	Data Storage	HP
Application Server	Citrix, SAP, Primavera , Lotus Domino Doc, File , Archive, Lotus Notes , Same time , PDS,PDMS	HP
Desktops	Work station and general	HP / Compaq.
Laptops	General purpose, Presentation	HP/ Compaq/ Sony
Router	Networking Switch	CISCO
Scanner	A0 size Scanner	ColorTrac
Printers	A4 to A3 size , B & W and Color	HP, Sharp
Plotter	A3 to A0 size	HP

Engineering Applications			
Process Engineering		Mechanical Engineering	
HYSYS	Process simulation	PDS®	3-D Plant Design & Modeling system
HTFS	Heat Exchanger design	PDMS®	3-D Plant Design & Modeling system
SmartPlant P&ID	Intelligent P&ID Generation	ANSYS®	Finite Element Software
PipeNet	Piping Network Design	Caesar II	Piping Stress Analysis
Flarenet	Flare Network Design	PV Elite	Design of Pressure Vessels
Instrumentation		E- Tank	Design of API Storage Tanks
Smart Plant Intools	Instrumentation suite	CodeCalc	Design of Pressure Vessels
InstruCalc	Design and sizing calculations	Cadworx	2D and 3D Modeling
Electrical Engineering		Alias I-Sketch	Isometric Modeling
ETAP	Electrical Power system study	Marian	Material Management Software
Structural Engineering		Navis Works	3D Model Review
STADPRO	Analysis and Design of structures	Microstation	3-D & 2-D CAD drafting.
		AutoCAD	3-D & 2-D CAD drafting.
Enterprise Management Tools			
SAP®	Enterprise Resource Planning	IBM® LotusNotes	E- mail Communication
HRMS	Human Resource Management	Lotus® Domino.doc	Documents Management
Primavera®	Project Management	Lotus® TimeSheet	Time Management application
Sage ACT®	Customer Relationship Management	Lotus® DCR	Planning and tracking documents
IT Applications			
Windows	Operating System	Oracle Database	Scalable Database
CITRIX	Web Access & Virtualization	MS SQL Server	Scalable Database
Symantec	Anti-Virus Software	VERITAS	Back up software
Fortinet	Firewall system	Cisco	Router and LAN Management
MS- Office	Standard Offices Applications	MS - Visio	Graphics and Drafting application

OBJECTIVES

- To make right information available to right people at right time.
- Managing Knowledge within the organization as a database
- Creation, capture, storage and dissemination of Expertise and Knowledge.
- Codes, Standards, Articles, Suppliers' information etc. are managed by IT Applications.
- Dedicated Knowledge Server available for storage of Data / Information with periodic back-up system
- Secure access to the information / solutions / knowledge and sensitive data.



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