SSC Engineering Solutions

COMPANY PROFILE

SSC Engineering Solutions Co.,Ltd.

88/102 Moo.1 Golden Village Bangna-Kingkaew
Rachatewa Bangplee Samutprakarn 10540 Thailand

Email:info@sscengineeringsolutions.com

Website: www.sscengineeringsolutions.com

Engineering Beyond Expectations

CONTENTS

Executive Summary

SSC Engineering Solutions Co., Ltd. (SSCES), established in 2019, is a Thailand-based multi-discipline engineering consulting firm delivering integrated engineering and data-centric digital engineering solutions to the Oil & Gas, Petrochemical, Chemical, and Power Generation industries.

With a team of 40 qualified engineering professionals, SSCES provides comprehensive services covering process engineering, process safety, piping and mechanical engineering, civil and structural engineering, electrical and instrumentation engineering, advanced 2D/3D modeling, and engineering manpower deployment.

SSCES differentiates itself through strong digital engineering capability built around AVEVA Unified Engineering (1D / 2D / 3D Capabilities), enabling seamless engineering data flow, cross-discipline coordination, and improved design reliability across the project lifecycle.

We support asset owners and EPC contractors from feasibility and conceptual studies through detailed engineering, construction support, and digital transformation initiatives.

SSCES operates under structured internal quality control procedures aligned with international engineering standards and maintains a zero-recordable incident record across all assignments.

Engineering Beyond Expectations.

Introduction

COMPANY OVERVIEW:

Legal Name: SSC Engineering Solutions Co., Ltd.
Established: 2019
Head Office: Samutprakarn, Thailand
Total Personnel: 40 Engineering Professionals

SSC Engineering Solutions is a privately owned engineering consulting firm providing structured multi-discipline engineering and digital engineering services to industrial clients.

Our execution model integrates discipline-based technical leadership with data-centric workflows to ensure engineering accuracy, quality assurance, and efficient project delivery.

CORE CAPABILITIES:

SSC Engineering Solutions delivers integrated services across three core pillars:

3.1 Engineering Consulting

Comprehensive multi-discipline engineering services from feasibility studies through detailed design and construction support.

3.2 Data-Centric Digital Engineering

SSCES delivers structured data-centric digital engineering solutions through integrated 1D–2D–3D engineering environments, ensuring seamless coordination across disciplines and project lifecycle phases.

Our core digital platform includes:

AVEVA Unified Engineering (1D / 2D / 3D Capabilities)

- 1D – Engineering Data Model Management
- 2D – Diagram & P&ID Integration
- 3D – Design Coordination & Model Development

Introduction

In addition, SSCES supports project execution using industry-standard SmartPlant platforms:

- **SmartPlant 3D (SP3D)** – 3D modeling and plant design
- **SmartPlant Instrumentation (SPI / Intools)** – Instrument database and loop management
- **SmartPlant Electrical (SPEL)** – Electrical design and database management
- **SmartPlant P&ID** – Intelligent P&ID development and data integration

Our integrated digital workflow enhances:

- Cross-discipline consistency
- Engineering data traceability
- Clash detection and model coordination
- Database-driven documentation
- Reduced engineering rework
- Improved construction readiness

3.3 Engineering Manpower Deployment

Qualified engineering professionals supporting EPC contractors and industrial operators in both office-based and site-based assignments

Vision, Mission and Values

Vision:

To be a leading engineering firm recognized nationally and internationally for excellence in project management and advanced engineering solutions.

Mission:

To create value for our customers by providing exceptional service while using a professional approach. We strive to deliver superior quality projects to our clients while meeting budget and schedule goals.

Values:

- **Integrity** – we employ the highest ethical standards and believe that our continued success is based upon sustaining the relationships that keep our business growing. We believe that open and honest communication is vital to the lasting success of the firm.
- **Efficiency** – we remain accountable to our clients for the efficient execution of any project. We will work to identify and execute cost savings wherever we can.
- **Teamwork** – we believe that an open culture characterized by mutual respect, sharing of ideas and a commitment to common goals contributes to the overall productivity of our firm. Our philosophy is that each team member plays an important role in our company by providing individual expertise and a distinctive perspective to each project that they are involved in.
- **Professionalism** – in providing professional service we are dedicated to competence, dependability and excellence. We believe that our projects are a reflection of who we are as a company.

Engineering Services

PROJECT MANAGEMENT:

Our Project Management services cover the entire project lifecycle, from initiation to successful completion, ensuring efficiency, quality, and compliance with industry standards. We provide strategic planning, risk management, resource allocation, and effective communication to achieve project objectives on time and within budget.

Our **Project Management** services include:

+ **Project Planning and Scheduling**: Developing comprehensive project plans, schedules, and timelines to optimize resource utilization and minimize delays.

+ **Cost Management**: Monitoring and controlling project costs, preparing budgets, and ensuring cost efficiency throughout the project.

+ **Risk Management**: Identifying potential risks, assessing their impact, and implementing effective mitigation strategies to minimize project disruptions.

Engineering Services

PROCESS ENGINEERING:

Our **Process Engineering** services are designed to optimize production processes, enhance efficiency, ensure safety, and reduce costs. With extensive experience in the Oil & Gas, Petrochemical, and Power Plant industries, our team of process engineers applies advanced engineering principles and best practices to develop effective and innovative solutions.

Our **Process Engineering** services include:

- **Process Design and Simulation:** Designing and simulating new processes using advanced software tools to achieve optimal efficiency and output.
- **Process Optimization:** Analyzing existing processes to identify inefficiencies, reduce waste, and increase productivity.
- **Process Safety Analysis:** Conducting HAZOP, HAZID, LOPA, and SIL studies to assess risks, ensure safety, and comply with industry standards.
- **Process Control Design:** Developing control strategies to maintain process stability, maximize efficiency, and minimize variability.
- **Process Troubleshooting:** Identifying and resolving process issues to minimize downtime and maximize operational performance.
- **Energy and Material Balance:** Evaluating energy consumption and material flow to reduce costs and enhance sustainability.
- **Technical Support and Consultation:** Providing expert advice and solutions for operational challenges and process improvements.

Engineering Services

PROCESS SAFETY ENGINEERING:

Our Process Safety Engineering services are designed to identify, assess, and mitigate risks associated with industrial processes. We help ensure the safety of personnel, protect assets, and minimize environmental impact, while maintaining compliance with international safety standards and regulations.

Our **Process Safety Engineering** services include:

- **HAZOP (Hazard and Operability Study):** Systematic analysis to identify potential hazards, operational issues, and their possible consequences.
- **HAZID (Hazard Identification):** Early identification of hazards to mitigate risks during the design and operational phases.
- **LOPA (Layer of Protection Analysis):** Assessing the adequacy of protective layers to prevent or control incidents.
- **SIL (Safety Integrity Level) Assessment:** Evaluating and assigning SIL ratings to safety instrumented functions (SIF) to reduce risks to an acceptable level.
- **Quantitative Risk Assessment (QRA):** Performing detailed risk assessments using quantitative methods to analyze the probability and impact of incidents.
- **Process Safety Management (PSM) Systems:** Developing and implementing PSM programs to ensure compliance with safety regulations (e.g., OSHA, IEC 61511).
- **Emergency Response Planning:** Developing emergency response plans and procedures to handle potential accidents effectively.
- **Safety Audits and Compliance:** Conducting safety audits to assess compliance with industry standards, local regulations, and best practices.
- **Incident Investigation and Root Cause Analysis:** Analyzing incidents to determine root causes and recommend corrective actions to prevent recurrence.

Engineering Services

PIPING ENGINEERING:

Our **Piping Engineering** services provide comprehensive solutions for designing, analyzing, and optimizing piping systems in industrial facilities. With extensive experience in the Oil & Gas, Petrochemical, and Power Plant industries, our team of piping engineers ensures efficiency, reliability, and safety of your piping networks.

Our **Piping Engineering** services include:

- **Piping Design and Layout:** Developing detailed piping layouts and isometric drawings using advanced software like **AutoPLant 3D, AVEVA E3D** and **SmartPlant** to optimize space, minimize material costs, and ensure safety.
- **Pipe Stress Analysis:** Evaluating the mechanical integrity of piping systems under various operating conditions, including thermal expansion, pressure, and dynamic forces.
- **Material Selection and Specification:** Selecting appropriate materials for pipes, fittings, valves, and supports based on process conditions, corrosion resistance, and industry standards.
- **Piping Support Design:** Designing and analyzing pipe supports to ensure stability, reduce vibration, and prevent mechanical failure.
- **3D Modeling and Visualization:** Creating 3D models to visualize piping systems, identify potential clashes, and enhance constructability.
- **Piping Fabrication and Installation Support:** Providing technical support for piping fabrication, installation, and commissioning to ensure accuracy and compliance.
- **Piping Code Compliance:** Ensuring adherence to relevant international standards and codes, such as ASME, ANSI, API, and ISO.
- **Piping Integrity Assessment:** Inspecting existing piping systems, conducting integrity assessments, and recommending maintenance strategies.

Engineering Services

MECHANICAL ENGINEERING:

Our **Mechanical Engineering** services focus on the design, analysis, and maintenance of mechanical systems and equipment used in the Oil & Gas, Petrochemical, and Power Plant industries. We aim to maximize efficiency, minimize downtime, and ensure operational safety and compliance with industry standards.

Our **Mechanical Engineering** services include:

- **Mechanical Design and Analysis:** Designing and analyzing mechanical components and systems, including pumps, compressors, turbines, heat exchangers, and pressure vessels.
- **Rotating Equipment Engineering:** Selection, specification, and troubleshooting of rotating machinery to ensure reliability and optimal performance.
- **Static Equipment Design:** Engineering and evaluation of static equipment like storage tanks, pressure vessels, and boilers, following international codes (ASME, API, etc.).
- **Finite Element Analysis (FEA):** Performing FEA for stress, vibration, and thermal analysis to assess the structural integrity and performance of mechanical components.
- **Maintenance and Reliability Engineering:** Developing preventive maintenance strategies, conducting root cause analysis, and optimizing equipment reliability.
- **Material Selection and Failure Analysis:** Selecting appropriate materials for mechanical components considering factors like temperature, pressure, and corrosion resistance.
- **Piping and Mechanical System Integration:** Coordinating with piping engineers to integrate mechanical systems effectively, ensuring seamless functionality.
- **Inspection and Testing:** Conducting inspections, non-destructive testing (NDT), and performance evaluations to verify the safety and integrity of mechanical systems.

Engineering Services

ELECTRICAL ENGINEERING:

Our **Electrical Engineering** services focus on the design, analysis, installation, and maintenance of electrical systems essential to the Oil & Gas, Petrochemical, and Power Plant industries. We aim to enhance safety, efficiency, and reliability while ensuring compliance with international standards.

Our **Electrical Engineering** services include:

- **Electrical System Design:** Developing detailed designs for power distribution, lighting systems, motor control centers (MCC), switchgear, and substations.
- **Power System Analysis:** Conducting load flow analysis, short circuit studies, harmonic analysis, and relay coordination to ensure system stability and reliability.
- **Instrumentation and Control Design:** Designing and integrating instrumentation systems, including sensors, transmitters, and control panels, for process monitoring and automation.
- **Cable Routing and Sizing:** Planning and sizing electrical cables, conduits, and cable trays while considering voltage drop, short circuit capacity, and safety requirements.
- **Earthing and Lightning Protection:** Designing grounding and lightning protection systems to safeguard personnel and equipment.
- **Electrical Equipment Specification and Selection:** Selecting and specifying electrical equipment based on project requirements and international standards (IEC, IEEE, NEC).
- **Installation and Commissioning Support:** Providing technical support during the installation, testing, and commissioning of electrical systems.
- **Electrical Safety and Compliance:** Ensuring adherence to safety standards and regulations, including hazardous area classifications (ATEX, IECEx).
- **Energy Management and Optimization:** Implementing energy-saving solutions and optimizing electrical systems to reduce operational costs.

Engineering Services

INSTRUMENTATION AND CONTROLS ENGINEERING:

Our **Instrument Engineering** services cover the design, selection, installation, and maintenance of instrumentation systems essential for process control and automation. We help industries enhance accuracy, efficiency, and safety by implementing advanced instrumentation technologies that comply with international standards.

Our **Instrument Engineering** services include:

- **Instrumentation Design and Specification:** Developing detailed specifications and data sheets for sensors, transmitters, flow meters, pressure gauges, temperature controllers, and analyzers.

- **Control System Design:** Designing control systems, including Distributed Control Systems (DCS), Programmable Logic Controllers (PLC), and Supervisory Control and Data Acquisition (SCADA).

- **Instrument Loop Design:** Creating detailed instrument loop diagrams (ILDs) to ensure accurate control and monitoring.

- **Installation and Calibration:** Providing technical support for the installation, calibration, and testing of instrumentation devices to maintain precision and reliability.

- **Instrument Selection and Sizing:** Selecting appropriate instruments based on process conditions, material compatibility, and environmental factors.

- **Fieldbus and Communication Networks:** Designing and configuring industrial communication networks such as HART, PROFIBUS, and FOUNDATION Fieldbus for seamless data integration.

Engineering Services

- **Safety Instrumented Systems (SIS):** Designing and implementing SIS in accordance with IEC 61511 standards to reduce operational risks.
- **Process Control and Automation:** Developing and optimizing control strategies for automated processes to enhance operational efficiency.
- **Maintenance and Troubleshooting:** Conducting preventive maintenance, diagnostics, and troubleshooting to minimize downtime and ensure optimal performance.

Engineering Services

CIVIL ENGINEERING:

Our **Civil Engineering** services encompass the planning, design, and analysis of infrastructure for industrial projects in the Oil & Gas, Petrochemical, and Power Plant industries. Our goal is to develop safe, sustainable, and cost-effective civil engineering solutions that meet industry standards and client requirements.

Our **Civil Engineering** services include:

- **Structural Analysis and Design:** Analyzing and designing structures such as foundations, platforms, pipe racks, equipment supports, and industrial buildings using advanced software and Finite Element Analysis (FEA).

- **Foundation Design**: Designing shallow and deep foundations, including spread footings, mat foundations, piles, and caissons, considering soil conditions and load requirements.

- **Site Development and Grading**: Planning and optimizing site layouts, grading, and drainage to ensure stability, accessibility, and environmental compliance.

- **Earthworks and Soil Analysis:** Conducting soil investigations, geotechnical analysis, and earthworks design to ensure proper support for structures.

- **Retaining Structures:** Designing retaining walls, embankments, and slope protection to prevent soil erosion and ensure structural stability.

- **Civil Drafting and Detailing**: Preparing detailed construction drawings, general arrangement (GA) drawings, and specifications for civil works.

- **Water Supply and Drainage Systems:** Designing water supply networks, drainage systems, and stormwater management for industrial facilities.

Engineering Services

- **Roads and Pavements:** Designing access roads, pavements, and walkways within industrial complexes to facilitate safe and efficient movement.

- **Construction Supervision and Quality Control:** Providing on-site supervision, quality inspections, and monitoring construction activities to ensure compliance with design standards.

Engineering Services

STRUCTURAL ENGINEERING:

Our **Structural Engineering** services focus on the analysis, design, and assessment of structural systems in industrial projects across the Oil & Gas, Petrochemical, and Power Plant industries. We ensure that structures are safe, reliable, and compliant with international standards while optimizing for cost-effectiveness and sustainability.

Our **Structural Engineering** services include:

- **Structural Analysis and Design**: Performing detailed structural analysis and design for buildings, pipe racks, platforms, equipment supports, and other industrial structures using advanced software and Finite Element Analysis (FEA).

- **Load Assessment:** Evaluating loads from wind, seismic, thermal, dead, and live loads to ensure structural integrity and stability.

- **Steel and Concrete Structure Design**: Designing reinforced concrete, steel, and composite structures in accordance with international codes (ACI, AISC, Eurocode).

- **Structural Integrity Assessment:** Assessing the integrity and safety of existing structures, including failure analysis and retrofitting recommendations.

- **Dynamic and Vibration Analysis**: Evaluating dynamic loads and vibration effects to minimize operational disturbances and structural fatigue.

- **Foundation Design:** Designing shallow and deep foundations to accommodate complex loading conditions and soil characteristics.

- **Finite Element Analysis (FEA):** Utilizing advanced FEA tools to analyze stress, deflection, and stability under various loading scenarios.

Engineering Services

- **Structural Drafting and Detailing**: Preparing detailed construction drawings, general arrangement (GA) drawings, and rebar detailing for accurate implementation.

- **Construction Supervision and Quality Control**: Providing on-site supervision, inspections, and quality control to ensure construction adheres to design specifications and standards.

- **Retrofitting and Rehabilitation**: Designing structural modifications and reinforcement to extend the service life of existing structures.

Engineering Services

DRAFTING AND DESIGN:

Our **Drafting and Design** services provide precise, high-quality 2D and 3D drawings for engineering projects in the Oil & Gas, Petrochemical, and Power Plant industries. With a skilled team of drafters and designers experienced in industry-leading software, we deliver accurate and efficient design documentation to support construction, fabrication, and installation.

Our **Drafting and Design** services include:

- **2D Drafting:** Preparing detailed 2D technical drawings, including plans, elevations, sections, and isometric views, to ensure clarity and compliance with project standards.
- **3D Modeling:** Developing realistic and detailed 3D models for better visualization, clash detection, and design optimization.
- **Piping and Instrumentation Diagrams (P&ID):** Creating comprehensive P&IDs for process systems to support process control and operational safety.
- **General Arrangement (GA) Drawings:** Producing GA drawings to illustrate the overall layout and arrangement of equipment, structures, and piping systems.
- **Isometric Drawings:** Providing accurate isometric piping drawings for fabrication and construction, including bill of materials (BOM).
- **Structural Detailing:** Preparing structural detailing and reinforcement drawings to support civil and structural engineering designs.
- **Electrical and Instrumentation Drafting:** Creating wiring diagrams, single-line diagrams, cable routing, and panel layout drawings.
- **As-Built Drawings:** Updating drawings to reflect the actual conditions after construction, ensuring accuracy for future reference.
- **Design Review and Verification:** Reviewing and verifying design documents to ensure compliance with project specifications and industry standards.
- **Software Expertise:** Proficient in industry-standard software like AutoCAD, AVEVA E3D, SmartPlant, SolidWorks, and Revit.

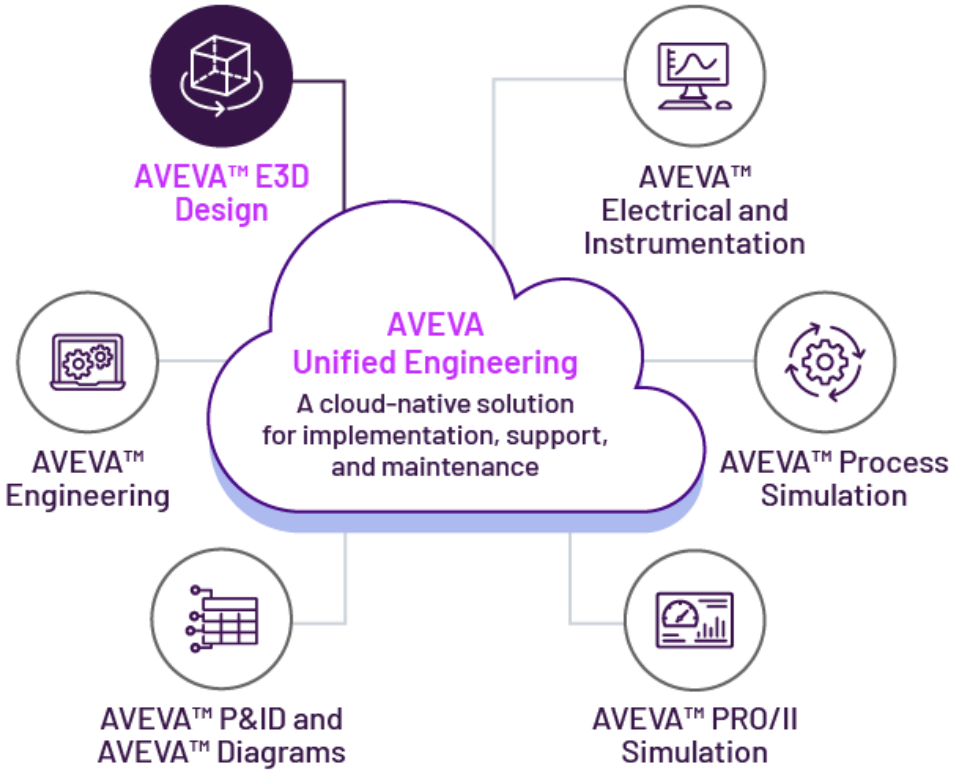
Engineering Services

SPECIALIZED SOFTWARE SOLUTIONS FOR ENGINEERING PROJECTS:

Our company provides cutting-edge engineering consulting services to the Oil & Gas, Powerplant, and Petrochemical industries, utilizing a range of specialized software to deliver precise and efficient solutions. Key software tools used in our projects include:

AVEVA Unified Engineering:

SETUP & IMPLEMANTATION:



We are used to a datacentric approach and have implemented and administrated project environments, mostly within the AVEVA suite for many years and clients in many different industries. We know administration, cats & specs, schematics, the engineering database, and 3D within that suite.

AVEVA Unified Engineering (1D / 2D / 3D Capabilities)

1D – Engineering Data Model Management

Structured management of engineering data, tag information, and asset databases.

Engineering Services

2D – Diagram & P&ID Integration

Integrated diagram management ensuring consistency between engineering data and documentation.

3D – Design Coordination & Model Development

Full 3D modeling environment enabling clash detection, coordination, and construction readiness.

SmartPlant:

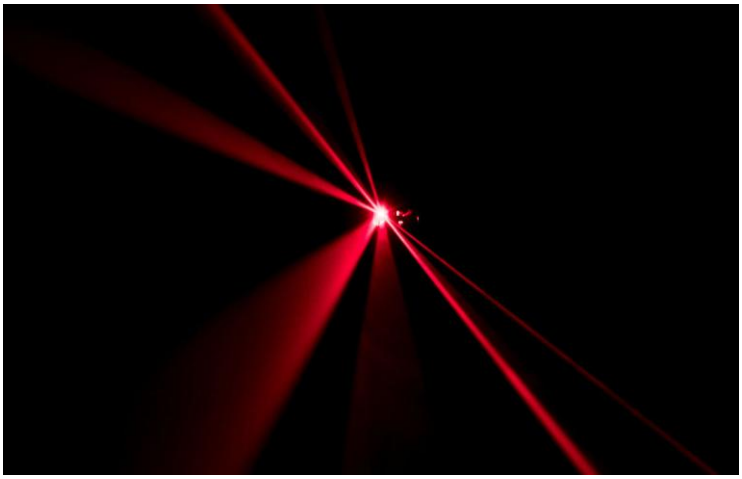
SmartPlant is a comprehensive suite of engineering design software used in plant design and construction projects. It enables multidisciplinary collaboration by integrating plant design, data management, and engineering workflows into one unified platform. This results in increased efficiency and accuracy in delivering engineering data, design models, and reports. SmartPlant also facilitates improved communication among various teams, ensuring that project specifications, design standards, and regulatory requirements are met seamlessly.

SmartPlant Component Features:

- **SmartPlant Foundation (SPF):** Acts as the central repository, managing engineering documents, ensuring data integrity, and streamlining project handovers.
- **SmartPlant 3D (SP3D):** Enables modeling, design, and visualization, facilitating concurrent, multi-disciplinary engineering to enhance accuracy.
- **SmartPlant Instrumentation (SPI/Intools):** Manages instrument data, loops, and specifications, including features like instrument composite specifications and data auditing.
- **SmartPlant Electrical (SPEL):** Handles electrical system data, featuring automated one-line diagrams, data sheet templates, and integration with ETAP for power systems.
- **SmartPlant P&ID (SPID):** The main design environment for creating drawings.

Engineering Services

LASERSCAN DATA MANAGEMENT:



Is data quality or site documentation an issue when You prepare for projects? Yes probably! Getting data as input from many sources and of various formats is always an issue when preparing for projects. Structuring data and implementing it within Your engineering databases for real use is one of our key strengths.

Another strength is managing data from laser scans. We can help as advisors before the scan itself is performed and we can help You manage raw point-cloud data and put it into relevance within Your projects. We know most of the common tools for point cloud and bubble view management.

DABACON ADMINISTRATION:

We are very familiar with administering Dabacon projects, from setting up the project and creating users, teams, databases and MDBs through to archiving a project for backup. We can help with naming conventions and other structures needed in a Dabacon project, we can help you set up Design, Draw and Isodraft to your liking and to fulfill your companys standards and needs.

Engineering Services

ENGINEERING & DESIGN:

Facing challenges with the coordination of design between disciplines? Hopefully not! If You do, we could be of help. Our background as designers, all our experience as 3D-coordinators, as CAD Managers and many years within our roles as database and tools-administrators have given us a broad perspective of how a project works and what the actual needs and challenges are for the different disciplines.

This means we can act in many roles during the design process ourselves or as advisors and support to many of the roles as well. We can also do objective analysis of Your design tasks and processes.

Engineering Services

3D LASER SCANNING

The laser scanning technology provides accurate 3D point clouds. It ensures that projects can enjoy accurate as-is information with a minimum of trips to the site and optimized workflow for engineers.
3D laser scanning technology is the quick answer to give a significant outcome and apply to broad applications such as manufacturing life cycle, engineering, design, development, surveying or clashing check.

Laser scanning is the fastest, most accurate, and automated way to acquire 3D digital data for reverse engineering. The point cloud datais used to create a 3D CAD model enables the precise reproduction of the scanned object, or the object can be modified in the CAD model to correct imperfections.

Engineering Services

ENGINEERING MANPOWER SUPPLY:

Our **Engineering Manpower Supply** service specializes in providing skilled engineering professionals for the Oil & Gas, Petrochemical, and Power Plant industries. We carefully select and match personnel to meet the specific needs and objectives of our clients.

We offer manpower solutions for

- Short-Term Project Assignments
- Long-Term Contract Deployment
- Discipline-Specific Technical Support
- On-Site & Office-Based Engineering Roles

Our network includes qualified and experienced professionals in the following disciplines:

- **Process Engineers:** Expertise in process design, production optimization, and efficiency enhancement.
- **Safety Engineers:** Specialize in safety analysis (SIL, HAZOP, HAZID, LOPA) and risk assessment.
- **Piping Engineers / Piping Designer:** Design and analyze piping systems, plan layouts, and coordinate pipe installations.
- **Electrical Engineers / Electrical Designer**: Skilled in designing electrical systems, instrumentation, installation, and testing.
- **Instrumentation Engineers / Instrument Designer**: Skilled in designing electrical systems, instrumentation, installation, and testing.

Engineering Services

- **Mechanical Engineers:** Experienced in the design, analysis, and maintenance of machinery and mechanical systems.
- **Civil Engineers and Civil Designer**: Proficient in structural analysis, civil construction, and stability assessment.
- **Structural Engineers / Structural Designer**: Proficient in structural analysis, civil construction, and stability assessment.
- **Draftsmen/Designers**: Capable of producing detailed 2D/3D drawings using software like AVEVA E3D and SmartPlant.
- **Inspection and Quality Control (QC) Specialists**: Experienced in quality assurance, inspections, and compliance with industry standards.

Why Choose Us?

- **Extensive Talent Network:** Access to a large pool of qualified professionals with verified credentials and industry experience.
- **Industry-Specific Expertise:** Our engineers have hands-on experience in Oil & Gas, Petrochemical, and Power Plant sectors.
- **Fast Response:** We can quickly provide suitable candidates to meet project timelines.

SSC ENGINEERING

SOLUTIONS