**Objective**

To design, establish, and operationalize a **state-of-the-art vacuum foundry** for producing **high-quality Grey and Ductile Iron castings**, aimed at **supplying global OEMs** (automotive, heavy machinery, energy sectors) and positioning the company as a **market leader in quality, reliability, and profitability**.

**Key Areas of Work**

**1. Greenfield Project Planning and Foundry Design**

* Feasibility study and business case development (technical, financial, market analysis).
* Foundry layout design for optimal flow — molding, melting, vacuum pouring, fettling, machining, inspection.
* Technology and machinery selection (vacuum systems, furnaces, molding lines, sand systems, core shops, finishing lines, testing labs, machine shop and paint shop).
* Vendor selection, technical evaluations, and procurement support.
* Facility planning compliant with global EHS (Environment, Health, Safety) standards.

**2. Process Engineering and Vacuum Technology Deployment**

* Develop and establish in house design and development team to make all the patterns/core boxesjigs/fixtures/pallets.
* Define and standardize vacuum melting and pouring processes for Grey and Ductile Iron.
* Develop metallurgical standards to achieve exceptional casting properties (mechanical strength, density, defect-free surfaces).
* Design mold and core making systems suitable for vacuum processes to minimize porosity and inclusions.

**3. Operational Excellence Strategy from Day 1**

* Implement Lean Foundry principles from startup (5S, Standardized Work, Poka-Yoke systems).
* Deploy world-class quality assurance systems (SPC, real-time defect monitoring, non-destructive testing - NDT).
* Introduce energy-efficient operations focusing on lower kWh/ton of casting.

**4. Building Quality Leadership for Global OEM Approval**

* Establish ISO 9001/IATF 16949 compliant Quality Management System (QMS) for automotive-grade supplies.
* Build advanced inspection capabilities (CMMs, 3D scanning, NDT testing, metallurgical labs,100% actual product fitment test).
* Facilitate approvals and audits from global OEM customers (PPAP, APQP frameworks).

**5. Profitability and Cost Optimization Framework**

* Optimize metallurgical recipes for high-yield, cost-effective production.
* Reduce wastage, scrap, and rework through predictive analytics and process control.
* Design flexible batch production to serve multiple industries with minimal changeover losses.
* Drive energy optimization — energy audits, renewable integration (solar rooftops), waste heat recovery.

**6. Smart Foundry: Digitalization and Industry 4.0**

* Implement smart sensors for process parameters (temperature, pressure, vacuum levels, flow rates).
* Real-time monitoring dashboards (OEE, scrap rates, cycle times, energy consumption).
* Predictive maintenance systems to minimize downtime.
* Digital twin simulations for production planning and troubleshooting.
* Develop and implement SAP for real time data and MIS systems.

**7. Workforce Capability Building and Organization Development**

* Recruitment and skill development for key roles (foundry engineers, metallurgists, maintenance experts, production planners).
* Training programs on vacuum technology, world-class manufacturing practices, problem-solving, and customer excellence.
* Establish performance-based culture with KPIs linked to profitability and customer satisfaction.

**8. Business Growth Strategy and Future Scalability**

* Develop a Go-to-Market strategy targeting global OEMs across automotive, construction equipment, material handling, Aerial work platforms, tractor industry, Heavy crane industry, renewable energy, and rail sectors.
* Strategic roadmap to expand capacity, diversify product mix (thin wall castings, high-strength applications) as market grows.
* Partnership strategies for international certifications and co-development programs with key OEMs.