SAKTHIKUMAR SIVAKUMAR

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EDUCATION

Master's in Industrial Engineering, ***University of Houston, Houston, Texas.*** **Aug 2022- May 2024**

Graduate Coursework: Materials handling, Case study in applied industrial engineering, Advanced linear optimization, Probability & Statistics, Production planning & inventory control, Engineering project management, Engineering Economy, Supply Chain Strategies, Database Management Tools for Business Analytics, Statistical Process Control.

Bachelor of Engineering in Mechanical Engineering, ***Anna University, Chennai, India.*** **Aug 2018 - May 2022**

KEY SKILLS

- Process flow diagram **(PFD)**, Value stream mapping **(VSM)**, Time studies, SMED, Layout design, Spaghetti diagram, DMAIC, Root cause analysis **(RCA)**, 5Whys, PFMEA, Kaizen, 5S, SWI/SOP, Six Sigma, Process capability study, APQP, PPAP, Gage R&R, Project management, Life cycle cost analysis **(LCCA)**, 2D/3D modelling, Materials requirement planning **(MRP)** and Inventory Control.
- **Software Skills -** SolidWorks, AutoCAD, PTC Creo, Catia, Minitab, Visio, visTABLE, FlexSim, Microsoft Office, SQL, C++.

EXPERIENCE

Process Engineering Intern, ***IKO North America, Hillsboro, Texas.*** **Jan 2024 – Present**

- Led the automation of the oxidizer tank cooling project using **DMAIC** methodology, performing root cause analysis **(RCA)** by using **fishbone** and **5 Whys** methods to determine factors leading to overcooling of the oxidizer under current auto-cooling logic.
- Conducted **time studies** to measure and analyze temperature fluctuations. Collaborated cross-functionally to integrate findings into the HMI system, eliminating overcooling of the oxidizer and reducing asphalt batching time by 30 minutes.
- Enhanced operator efficiency in the loading and unloading of fiberglass rolls from/to the turret stand by implementing **5S** floor markings, which involved painting and labelling yellow lines and stop signs for the new process.
- Collected data and performed statistical analysis **(SPC)** on the release tape's position on shingles by developing histograms, **control charts**, and **process capability tests** to check whether the process is in control.
- Designed and modified the tape rack and roller guides using **AutoCAD** and **PTC CREO** which saved 20,000 lost shingle bundles per week and 8% increase in **OEE**.

Process Quality Engineer Intern, ***Ucal Systems Inc., Elgin, Illinois*****.** **June 2023 – Aug 2023**

- Conducted **time studies**, and developed and maintained documents of **SWI/SOP**, Process flow diagrams **(PFDs)** and value stream mapping **(VSM)** to analyze and optimize production processes for three new part numbers.
- Developed key **KPIs**, such as quality and machine downtime, and collaborated with the VMC machine operator to collect critical dimension data of part samples daily. Conducted statistical analysis **(SPC)** to monitor **process capability** and **control charts**.
- Performed **root cause analysis (RCA)** through **fault tree analysis** method for a production delay in the VMC machining cell and worked along with the technician to solve the issue, possibly saving 30 minutes of production time per shift.
- Modeled a new **layout design** for the VMC machining cell and got approval from the production manager for modifying the layout. This reduced the movement of the parts within the cell, saving 21 seconds per cycle.
- Performed **5S** while modifying the layout. Designed tool holders and fixtures to hold the inspection tools in place using **Solidworks** and contacted an external supplier to manufacture the holders as per the requirement.
- Conducted **time studies** and analyzed the **man and machine utilization** in the machining cell. Optimized drilling and grinding machining cell by utilizing the operator with more idle time and simulated the process using **FlexSim** software, resulting in a 6% increase in daily output while reducing annual labor costs by $35,000.
- Assisted senior quality engineers in conducting **Gage R&R** studies and utilized **Minitab** software to calculate and interpret metrics. Documented Gage R&R procedures, results, and recommendations in detailed reports for **PPAP** and **APQP** documentation.

Transmission Quality Control Engineering Intern, Hyundai Motor India Limited, Sriperumbudur, India. **Feb 2022 – May 2022**

- Performed root cause analysis through a **fishbone diagram** to identify oil leakage in the transmission system. Proposed enhancing wear resistance by chrome plating or Teflon coating the SCM-435 shaft material.
- Performed pin-on-disk testing and evaluated wear resistance for uncoated SCM-435 shaft, chrome-plated SCM-435 shaft, and Teflon-coated SCM-435 shaft. Improved the wear resistance by 10.4 times more than the current uncoated SCM-435 material.

INDUSTRY & ACADEMIC PROJECTS

Develop a business plan for a product and design the ideal supply chain. **Nov 2023 – Dec 2023**

- Developed **value stream map (VSM)** for the business model for the overall process starting from raw material sourcing to delivery in retail stores. Determined the cities for the distribution centers based on sales ratio and geographical location.
- Identified the shipping method to be LTL and minimized the truck's travel distance between multiple distribution centers using the vehicle routing method in **Excel Solver**.

Life cycle cost analysis (LCCA) on air-cooled and oil-cooled supercomputers, ***DUG LLC., Houston, Texas.*** **Sept 2023 – Nov 2023**

- Evaluated and made a comparison of critical financial metrics, including present worth, future worth, annual worth, IRR, and TCO between Supermicro's air-cooled system and DUG's immersion-cooled system.

Process improvement in Injection Molding shop floor, ***Garlock Sealing Technologies, Houston, Texas.*** **Jan 2023 – May 2023**

- Performed **Time and motion study analysis** by taking video footage along the process flow. Sequenced the injection molding department's process steps on a **flow process chart**.
- Designed the current and future state value stream map **(VSM)** for the injection molding department. Reduced the total lead time which improved the flow efficiency by 2.67%, achieved by implementing the **kaizen** ideas.
- Identified bottleneck areas in the mold setup process and implemented **kaizen** ideas, which reduced 16 minutes per mold setup.
- Performed **5S** - Labeling the mold storage rack and sorting the tool board, saving 90 seconds per mold setup in search time, and also adopted crane limit switches to error-proof **(Poka-yoke)** the mold setup activity, saving 160 seconds per mold setup.

Inventory control using forecasting & MRP techniques at a distribution center, ***CEAT tires distributor, Chennai, India.*** **May 2023**

- Forecasted demand and assigned safety stocks by classifying the products into runners, repeaters and strangers based on sales report.
- Performed lot-for-lot Materials Requirement Planning **(MRP)** technique using the forecasted demand data, and safety stock data. Determined the net requirement data and planned order release dates for the upcoming 12 weeks.

CERTIFICATIONS

- **Six Sigma Green Belt –** IISE | **Supply Chain Logistics –** Rutgers University | **Master Diploma in Product Design -** CADD Centre **Rigging and Material Handling –** ASC OSHA **| Cranes, Derricks, Hoists, Elevators, and Conveyors -** ASC OSHA