

Saurabh Prakash Pethe

Professional Summary: Highly motivated mechanical design, automation engineer, battery engineer and chemist with full time work experience of 5+ in certification, advanced materials, process automation, product development, design and validation of complex engineered intermediates and products

Skills

- Product certification and regulation
- Experimental design validation
- Product development and prototyping
- Manufacturing processes: Blow molding, Injection molding, Roll forming, Thermoplastic tape impregnation, Pultrusion, Investment Casting, Compression Molding
- Leadership
- Communication Skills
- Python programming
- Process automation
- CFD: Mold flow analysis
- Spectroscopic methods
- Separation/recycling methods
- Battery manufacturing and testing
- Electrochemistry

Graduate Research Assistant: August 2021 under the guidance of Dr. Parans Paranthaman, Corporate fellow at Oak Ridge National Laboratory, University of Tennessee – Oak ridge innovation institute, Knoxville, Tennessee

- Dissertation: Low embodied energy recycling of lithium-ion batteries using sorbents and manufacturing of batteries using the same separated materials.
- Lithium extraction
- High voltage cathodes

Graduate Research Assistant: August 2018 to 2021 under the Guidance of Dr. Uday Vaidya, UT-ORNL Governor's Chair in Advanced Composites Manufacturing, The University of Tennessee – Knoxville, Tennessee

- Actively contributed to projects of the Institute for Advanced Composites Manufacturing Innovation (IACMI)- Manufacturing USA institute (a 160+ industry members Institute sponsored by the Department of Energy), see www.iacmi.org. Industry engagement involved companies & partners such as DuPont, Zoltek, National Renewable Energy Laboratory, Oak Ridge National Laboratory to name a few.
- Thesis: Designed and built an automated lab scale impregnation line to manufacture continuous carbon fiber (of different tow sizes) reinforced thermoplastic resin tapes. Work will lead to commercialization of in-line impregnation of carbon fiber to produce intermediates. (Patent pending)
- Pultrusion of low-cost carbon fiber at the Carbon Fiber Technology Facility (CFTF), Oak Ridge National Laboratory (ORNL) to produce large spar cap for wind turbines and composite rebar for construction.
- AR/VR training modules for multiple composite manufacturing processes

Research Lab Engineer: Emerson Electric – Pune, Maharashtra, India

- Performing prototype and design validation tests on LED luminaire and electrical equipment such as enclosures, transformers, and circuit breakers for hazardous environments according to relevant standards from IEC/NEMA/UL and facing third party audits for the same.
- Capturing all the test data and generating controlled documentation for the performed tests (a) Ingress protection for dust and water (IP/NEMA); (b) Temperature rise of electrical systems; (c) Performance under extreme environmental conditions; and (d) Drop tests and impact test

Quality and Product Development Engineer: The Supreme Industries – Halol, Gujarat, India

- Prototype testing and design validation of composite over wrapped pressure vessels per relevant standards of ISO, ASTM and EN
- Worked on implementing TQM and ISO - 17025 accreditation for Laboratory
- Maintained quality incoming raw material, finished goods testing and vendor development for new products
- Worked on preparing SAP Master Data for QM module
- Performed tests like -: Fatigue pressure cycling of pressure vessel; (b) Hydraulic proof and burst pressure test; (c) Performance under extreme environmental conditions; (d) Performance after Drop Impact; (e) Pneumatic Leak and Gas Permeability; and (f) Mechanical tests for polymer and composites

Education

- **Pursuing PhD in Energy science and engineering**
University of Tennessee Oak ridge innovation institute - Knoxville, TN
- **Master of Science: Mechanical Engineering**
The University of Tennessee - Knoxville - Knoxville, TN
- **Bachelor of Engineering: Mechanical Engineering: First Class**
Pune University - Pune, India
- **Diploma in Engineering: Mechanical Engineering: First Class**
Maharashtra State Board of Technical Education - Pune, India
- **Graduated High school (10th Grade)**
Central Board of Secondary Education, Indian High School, Dubai