RISHI RAJ

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📍 Jamshedpur, Jharkhand

EDUCATION

Bachelor of Technology - Mechanical Engineering
Birla Institute of Technology, Mesra
📅 2021 - Present   📍 Ranchi, Jharkhand

CGPA
8.42 / 10.0

Class 12 (Intermediate)
D.A.V. Public School
📅 2018 - 2020   📍 Jamshedpur, Jharkhand

Percentage
90.0 / 100

Class 10 (Matriculation)
Tarapore School
📅 2005 - 2018   📍 Jamshedpur, Jharkhand

Percentage
87.0 / 100

SKILLS

| AutoCAD | SOLIDWORKS | PTC Creo | Simcenter STAR-CCM+ | ANSYS | Ansys Fluent | Ansys Mechanical |

| Computational Fluid Dynamics (CFD) | Finite Element Method | Manufacturing | Automation | Automotives |

EXPERIENCE

Mechanical Engineering Intern
Tata Steel
📅 05/2024 - 06/2024   📍 Jamshedpur, Jharkhand
Project: Increase the Reliability of Braking Pinch Roll Assembly in New Bar Mill.

- Conducted a comprehensive study of the Braking Pinch Roll working principles.
- Problems are measured from NBM delay database of the department
- Breaking the problems down into smaller and manageable pieces.
- Successfully identified and analyzed the underlying causes of reliability problems.
- Proposed and implemented effective solutions to address the identified root causes.
- Developed interactive dashboards using Power BI to provide real-time insights.
- Consolidated each solutions and reports into a clear and concise format.

PROJECTS

Optimization studies of the Hydrokinetic Turbine (Savonius) and its performance (currently in progress).

Research project with group members of three, under the guidance of our professor, Dr. Lakhbir Singh Brar, Mechanical, BIT MESRA.
The primary objective of this project is to enhance the average torque output coefficient of the Savonius hydrokinetic turbine.
Skills: Computational Fluid Dynamics, Turbomachinery, CAD, Simcenter STAR-CCM+, SOLIDWORKS.

- A comprehensive analysis of existing research papers on hydrokinetic turbine working principles and models.
- Regular discussions with team members and the project guide were held to foster knowledge sharing and address challenges.
- The rotor and stator geometries of the Savonius turbine were meticulously designed and modeled using SOLIDWORKS.
- CFD simulations were performed using Star-CCM+, employing both K-epsilon and K-omega turbulence models to analyze the flow.
- Detailed post-processing of the CFD simulation results was conducted to extract valuable insights.
- By understanding the turbine's performance characteristics, we move on to currently writing paper for well-structured final report.

Computational Fluid Dynamics & Heat Transfer analysis of a Shell and Tube Heat Exchanger

Skills: Computational Fluid Dynamics, CAD, MATLAB, Heat Transfer, Heat Exchanger, SOLIDWORKS, ANSYS.

- Successfully executed a comprehensive heat exchanger analysis.
- Leveraged MATLAB for computational calculations included accurate LMTD and NTU determination
- SOLIDWORKS was effectively utilized to develop accurate and comprehensive heat exchanger models.
- Conformal Mesh are generated on designed model for simulation.
- Simulate the mesh in 'Ansys Fluent', prediction of unknown temperature and energy values.
- In-depth visualization of thermal and fluid dynamics

Finite Element Analysis of buckling of a connecting rod of crankshaft

Skills: Finite Element Method, CAD, SOLIDWORKS, ANSYS.

- SOLIDWORKS was effectively utilized to develop an accurate and comprehensive connecting rod model.
- Conformal mesh generation was successfully accomplished using ANSYS to prepare the designed model for simulation.
- Conduct a finite element analysis to investigate the buckling behavior of columns with varying amplitudes applied to a connecting rod.

EXTRA CURRICULAR ACTIVITIES

Cricket
Honed my skills as an all-rounder, participated in numerous matches in inter-house school tournaments and consistently contributed to my team's success.

Swimming
Recently joined the JRD Swimming Club to enhance my swimming abilities. Actively practicing essential strokes including underwater, breaststroke, butterfly, and freestyle.