TANUJ PATIL

MECHANICAL ENGINEERING STUDENT | CAD DESIGN | MANUFACTURING | PRODUCT DEVELOPMENT

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EDUCATION

Bachelor of Technology (B.Tech) – Mechanical Engineering (Pursuing) **2023 to 2027**
Vishwakarma Institute of Technology, Pune
CGPA: 8.12/10

PROFESSIONAL SUMMARY

Mechanical Engineering student with a strong interest in manufacturing, product development, and industrial engineering. Proficient in CAD design, engineering analysis, and manufacturing processes including machining, casting, and forging. Experienced in developing engineering projects that combine practical problem-solving with analytical thinking. Quick learner with excellent teamwork ability. Seeking opportunities to contribute to innovative manufacturing and engineering organizations.

TECHNICAL SKILLS

CAD & Design: SolidWorks, Catia, Fusion 360, AutoCAD | Data & Analytics: Microsoft Excel, Data Analysis, Power BI, Supply Chain Fundamentals. | Simulation: ANSYS, Simulink | Manufacturing: Casting, Forging, Machining, Lathe Operations | Core Skills: Mechanical Design, 3D Modeling, Engineering Drawings | Programming: Python (Basics), C Programming | Familiar: Mastercam, GD&T, DFM

PROJECTS

Design & Analysis of Piston and Connecting Rod of I.C. Engine Components
- Designed piston and connecting rod assemblies using SolidWorks, focusing on strength, manufacturability, and component performance.
- Performed structural analysis to evaluate stress distribution and support design validation.
- Prepared detailed engineering drawings and co-authored a SCOPUS-indexed research paper.

Wireless Rotating Chuck Force Measurement System.
- Developed an industrial IoT-based wireless force telemetry system for rotating chuck applications at OMKAR ENGINEERING.
- Integrated ESP8266 NodeMCU, HX711 ADC, INA126 instrumentation amplifier, and strain gauge load cells for real-time force acquisition and telemetry.
- Designed a 35° conical mechanical force conversion mechanism in SolidWorks for indirect gripping force measurement under rotating conditions.
- Built a live telemetry dashboard using React.js, Tailwind CSS, and WebSockets for continuous monitoring and visualization.

3D Modeling of Machine Components – Internal Gear Pinion Drive
- Developed accurate 3D CAD models of an internal gear–pinion drive using Fusion 360.
- Created assembly models and engineering drawings while validating design against functional requirements.
- Published the work in SCOPUS-indexed conference proceedings.

Protective Inserts Using Non-Newtonian Fluid
- Investigated shear-thickening fluids for impact-resistant protective inserts.
- Evaluated material behavior under varying impact conditions through literature review and experimental analysis.
- Published findings in the IJIRT journal.

EV Battery Pack Thermal Management & Airflow Analysis
- Designed a multi-cell EV battery pack assembly and protective enclosure using CAD, incorporating air inlet and outlet channels for forced-air cooling.
- Performed thermal and airflow analysis in ANSYS to evaluate temperature distribution across battery cells and identify regions with inadequate cooling.

LEADERSHIP & POSITIONS OF RESPONSIBILITY

Coordinator, Social Welfare & Development Committee (SWDC), VIT Pune

AREA OF INTEREST

Mechanical Design, Manufacturing, Product Development, CAD Modeling, Automotive Engineering, Lean Manufacturing.

LICENSES & CERTIFICATIONS

Solidworks , Udemy

Power Bi, Skill Course

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