Rao Talha Afzal

Mechanical Engineer

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ABOUT ME

Second-year Mechanical Engineering student with a strong interest in applied engineering and project-based learning. Hands-on exposure to mechanical design fundamentals, 2D engineering drawings, and prototype-oriented academic projects. Comfortable with technical documentation and collaborative tools, and motivated to develop practical skills through internship and entry-level opportunities in a structured professional environment.

Projects

Stress Analysis Report: Citicorp Center ("Project Serene")
Team Leader: **Nov 2025 – Dec 2025**

Analyzed structural stress distribution for Citicorp Center and prepared a technical report.

- Conducted stress recalculation and structural analysis using engineering principles.
- Prepared detailed report documenting methodology, calculations, and findings.
- Presented findings to faculty, emphasizing practical engineering applications.

Civic Engagement: Blood Donation & Rural Health Awareness Campaign
Team Member: **Oct 2025 – Dec 2025**

Organized community outreach activities to support rural healthcare and organized blood donation camp.

- Conducted blood donation camp in our university.
- Conducted awareness campaign on the importance of healthcare and the lack of hospitals in rural communities.
- Coordinated volunteer efforts and liaised with local hospitals.
- Contributed to community engagement and public health awareness.

Trajectory with CPP and Nebulink App
Team Member: **Apr 2025 – May 2025**

Designed a rocket-type structure and monitored real-time data using our app Nebulink.

- Analyzed trajectory, performance, and stability of the rocket.
- Integrated data collection with app-based real-time monitoring.
- Presented findings on design optimization and real-time testing results.

Escape Mechanism Design
Team Leader: **Mar 2025 – Apr 2025**

Designed and simulated a mechanical escape mechanism, emphasizing functional reliability and motion testing.

- Developed mechanical components and tested motion sequences for efficiency.

- Optimized the design to ensure mechanical reliability and performance.
- Documented design process and presented results to faculty.

Rover "Navigator"
Team Member: **Feb 2025 – Mar 2025**
Developed a rover prototype for terrain navigation as part of a team project.
- Designed mechanical structure and implemented functional testing.
- Focused on mobility, obstacle handling, and mechanical durability.
- Applied project design and performance analysis.

4-Cylinder Engine CAD Model
Team Leader: **Feb 2025 – Mar 2025**
Developed a full 3D CAD model of a 4-cylinder engine as part of a team project.
- Focused on assembly, mechanical fit, and accurate component modeling.
- Used CAD tools to enhance visualization and simulate basic engine operations.
- Collaborated with team members to finalize the design and technical report.

Engineering Drawing: Valve Design
Oct 2024 – Nov 2024
As part of the mechanical engineering curriculum, I developed detailed CAD drawings for a valve, focusing on precision, dimensioning, and drafting standards.
- Created accurate 2D and 3D engineering drawings using CAD software.
- Learned technical drafting standards and precision in mechanical design.
- Collaborated with team members to review and validate design accuracy.

Workshops/Webinars

Quality and Design of Experiments (DOE)
Hands-on Minitab | DME @ NUST CEME **Nov 2025**
Participated in a technical workshop covering statistical analysis and quality control using Minitab software.
- Completed a technical workshop on **Statistical Process Control (SPC)** and experimental design.
- Gained hands-on experience using **Minitab® software** to analyze engineering data and improve process quality.
- Studied **Design of Experiments (DOE)** methodologies to optimize mechanical systems and operational efficiency.

Mastering CSWA: Gateway to SolidWorks Certification
Webinar | ASME UET **Aug 2025**
Participated in an intensive webinar series focused on **3D Modeling** and assembly design principles.
- Developed foundational skills for the **Certified SolidWorks Associate (CSWA)** exam, including part modeling and drawing standards.
- Engaged with the ASME UET Taxila Chapter to stay updated on international mechanical engineering design standards.

EDUCATION

NATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY(NUST), PK
Bachelor of Sciences – Mechanical Engineering **2024 – Present**

- College of Electrical and Mechanical Engineering (CEME)
- **Status:** Successfully completed 3 semesters of rigorous engineering curriculum with a focus on practical mechanical systems and fleet maintenance.

ARMY PUBLIC SCHOOL & COLLEGE PASBAN RAWALPINDI
Intermediate – Pre-Engineering **2022 – 2024**

- Completed the HSSC with **843/1100 Marks** in Federal Board.

ARMY PUBLIC SCHOOL & COLLEGE PASBAN RAWALPINDI
Matriculation **2020 – 2022**

- Completed the SSC with **1021/1100 Marks** in Federal Board.

ADDITIONAL INFORMATION

- **Technical Skills**: C++ | CSS | HTML | JavaScript | CAD Design | Graphic Design | AutoCAD| Fusion360 |
- **Soft Skills**: Adaptability | Problem Solving | Management | Team Collaboration | Versatility | Time Management
- **Languages:** English | Urdu (*Native*)