

SHRAWAN SATWE

Mechanical Engineering Student | Minor: Robotics & Artificial Intelligence

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PROFESSIONAL SUMMARY

Chancellor's Merit Scholar and Mechanical Engineering undergraduate (9.25/10 CGPA) with a minor in Robotics and Artificial Intelligence. Hands-on experience in thermal systems operation, predictive thermodynamic modeling of ternary salt systems, and computer-aided mechanical design. Seeking a summer internship to apply analytical modeling, HVAC systems knowledge, and robotics fundamentals in a forward-thinking engineering environment.

TECHNICAL SKILLS

- CAD/CAE Tools:** SolidWorks, AutoCAD (2D and 3D), parametric modeling, assembly design, engineering drawings
- Programming & Analysis:** Python, C, MATLAB, Simulink, computational modeling, data analysis, algorithm development
- Robotics & Automation:** Denavit-Hartenberg (DH) parameter analysis, robotic kinematics, robotics systems integration
- Thermal & Mechanical Systems:** HVAC systems, chiller plant operations, thermal analysis, fluid properties modeling, heat transfer
- Manufacturing & Quality:** Process flow analysis, manufacturing equipment evaluation, technical documentation, quality control protocols
- Productivity & Reporting:** Microsoft Office Suite, technical report writing, presentation design

EDUCATION

B.Tech in Mechanical Engineering (Minor: Robotics & Artificial Intelligence)

Expected 2028

K.J. Somaiya College of Engineering, Mumbai

- CGPA: 9.25/10 — Chancellor's Merit Scholarship Recipient
- Relevant Coursework: Thermodynamics, Fluid Mechanics, Heat Transfer, Robotics, Artificial Intelligence, Machine Design, Engineering Mechanics, Computer-Aided Design

Higher Secondary Certificate (HSC)

2022 – 2024

N.M.F. College of Commerce and Science, Mumbai

- Percentage: 82.17%

Secondary School Certificate (SSC)

2012 – 2022

Yashodham High School, Mumbai

- Percentage: 89.60% | State Merit Scholarship Recipient

PROFESSIONAL EXPERIENCE

Research Intern — Thermodynamic Modeling

Jan 2025 – Present

K.J. Somaiya College of Engineering (under Dr. Ajay Gangrade), Mumbai

- Developed geometric models for viscosity and density prediction of lithium nitrate (LiNO₃) and cesium nitrate (CsNO₃) based ternary nitrate salt systems for concentrated solar power (CSP) thermal energy storage applications.
- Applied the General Solution Model to predict thermodynamic properties of ternary and higher-order salt mixtures, establishing a predictive framework for molten salt behaviour at operational temperatures.

- Correlated calculated geometric parameters with experimental viscosity and density data to validate model accuracy against published thermophysical property databases.

Chiller Plant Operations Intern

May 2024 – Jun 2024

Omkar Summit Business Bay, Mumbai

- Operated and monitored a 365-ton refrigeration (365-TR) York centrifugal chiller plant, managing cooling load distribution and energy efficiency in a commercial HVAC environment over a 21-day tenure.
- Documented operational parameters, chiller performance curves, and maintenance logs in a comprehensive technical report for facilities management review.
- Supported troubleshooting of compressor, evaporator, and condenser subsystems to minimise downtime and maintain thermal comfort standards.

PROJECTS

4-Link Articulated Robot — ESP-12E Microcontroller

2025 – Present

K.J. Somaiya College of Engineering, Mumbai

- Designing and building a 4-link articulated robotic arm driven by 3 servo motors and an ESP-12E microcontroller, applying Denavit-Hartenberg (DH) parameter analysis for forward kinematics modelling.
- Integrating inverse kinematics algorithms in Python/C to achieve programmable end-effector positioning within the robot's workspace.

Technical Analysis — Mineral Water Bottling Plant

2024

K.J. Somaiya College of Engineering, Mumbai

- Conducted end-to-end technical analysis of mineral water manufacturing processes, including reverse osmosis purification, automated bottling, and packaging line operations.
- Evaluated plant layout, machinery specifications, and process flow to optimise production capacity and material handling efficiency.
- Authored a detailed technical report documenting equipment selection criteria, production throughput targets, and quality assurance protocols per industry standards.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Joint Public Relations Head

2024 – Present

Mechanical Engineering Students Association (MESA), K.J. Somaiya College of Engineering

- Drafted official announcements and press releases to promote industry outreach programs, including site visits to ELMACH Packages India Pvt. Ltd. and Nandan GSE, Khalapur.
- Executed promotional campaigns that increased student participation in mechanical engineering workshops and professional development seminars.

Athletics

- State Silver Medalist, Mallakhamb (Traditional Indian Gymnastics) — national-level competitor representing school and college; over 10 years of active practice.
- Current fitness regimen: ~25 km/week running and 1,000 skips per session.

Music

- Tabla: Madhyama Pratham Grade (Level 4/7), Hindustani Classical Music.

AWARDS & HONORS

- Chancellor's Merit Scholarship — K.J. Somaiya College of Engineering (2024 – Present)
- State Merit Scholarship — Yashodham High School (2022)
- State Silver Medal — Mallakhamb, Maharashtra State Championship