Hamza Ahmed

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Languages: English (Bilingual), Urdu (Native)

Professional Summary

Mechanical Engineer with 10+ years of combined experience in production management, composite manufacturing, and quality systems implementation across aerospace, automotive, and industrial sectors. Proven track record in leading workshop teams, optimizing processes, enforcing safety compliance, and delivering complex manufacturing projects on time. Expertise spans sheet metal fabrication, CNC machining, composite tooling, and automated production lines, with a strong foundation in quality control, lean manufacturing, and process improvement.

Core Competencies

- *10+ Years' Managerial Experience* in project planning, strategic planning, team leadership, design-to-manufacturing transition, financial analysis, process improvement, and customer satisfaction.
- *3 Years' Metal Manufacturing Expertise* including CNC fiber laser cutting (sheet & tube), mechanical press, FDM & SLA 3D printing, 3D scanning, CNC machining, CNC EDM wire cutting, CNC routing, CO_2 laser cutting, TIG welding, lathe, milling, and surface grinding.
- *6 Years' Design Evaluation Experience* using SolidWorks, Aspire, Lightburn, Bodor, FiberSim (draping analysis), Abaqus (composite FEA), ASTM 3039 and ASTM D3171-99 material testing, CES Granta (Ashby material selection), prototyping, and industrial documentation.
- *7 Years' Composite Manufacturing Expertise* in CNC router pattern making (MDF & tooling board), aluminum and composite molds, autoclave processing, prepreg (glass fiber, carbon fiber, Kevlar), RTM, VARI, compression molding, and resin systems (polyester, vinyl ester, Huntsman epoxy).
- *Quality Control & Process Improvement* — Proven ability to establish QC frameworks, conduct root cause analysis, implement preventive measures, and reduce defect rates by over 20%

Professional Experience

Future Composite — CEO

July 2023 – Present | Rawalpindi, Pakistan

- ***Turkish Aerospace Industries*** – Molds & carbon fiber skins for high-speed drone (Vacuum Bagging Process)
- ***Eurocompozite Romania*** – Designing quality control system of 90% water savings, improving livestock productivity (Hydroponic Fodder System)
- ***EV Bikes*** – Fiberglass body parts manufacturing services different local manufactured bikes (on going)
- ***NUST*** – Consultancy on automating prepreg composite layup, including process modeling, robotics cell selection and end effector design

National Centre of Robotics & Automation, NUST — Team Lead

April 2019 – June 2023 | Islamabad, Pakistan

- Led the design, setup, and commissioning of the ***Robot Maker Lab***, including procurement, tendering, and integration of advanced manufacturing equipment (3D printing, CNC machining, fiber laser cutting, injection molding).
- Directed multiple R&D and industrial projects, including Agri-bot, Date Pitting Machine, Seeder Sprinkler Drone, AC Filter Pleating Machine, Concrete 3D Printer, and Solar Cleaning Robot, from design through to manufacturing.
- Provided design consultancy to optimize manufacturing processes, reduce costs, and improve product performance.
- Developed and implemented multiple sheet metal order from industrial and art work as well
- Delivered technical training on SolidWorks CAD, CAM, composite manufacturing (VARI), metal laser cutting, and 3D printing to engineers and technicians.
- Collaborated with academia, research organizations, and industry partners to translate prototypes into scalable manufacturing solutions.

Future Composite — Production Manager / Manufacturing Engineer

July 2014 – Feb 2018 | Rawalpindi, Pakistan

- Founded and managed a composite manufacturing company delivering aerospace, defense, and industrial projects.
- Established quality control frameworks for production of fiberglass doors, reducing defects by over 20% through process audits and training.
- Led fiberglass and carbon fiber product development, mold design, and production for large-scale contracts.
- Implemented preventive maintenance schedules and process documentation to ensure compliance with customer specifications.

- Managed supplier relationships, ensuring material compliance to technical standards.

Composite Engineer Research Group, NUST — Technical Member

Aug 2012 – June 2014

- Conducted material testing for composites, including tensile strength, void content, and density measurements.
- Series of experiments performed to learn Hand-layup, VARI and Compression Molding processes
- Assisted in organizing Pakistan's first Composite Show, promoting industry best practices.

Education

- B.E. Mechanical Engineering – National University of Sciences & Technology (NUST), Islamabad
- 2010 – 2014 | Final Year Project: Composite Vehicle Door Design & Fabrication (Awarded 2nd Position)

Achievement and Awards

- Composite Specialist consultant for NUST project
- 2nd Position in Final Year Project and 122th position entry test of NUST
- 1st position in Intel and 2nd in Discover Business plan Competition
- Member of Composite Engineer Research Group at (NUST CERG)
- Secretary Programs (2013) and Deputy Director of HR (2012),
- Represented NUST ASME (EME Chapter) at VASSCA and DICE (by British Council) exhibition

References

- Dr. Rizwan Saeed Choudhry, University of Derby, University of Doha for Science & Technology https://www.linkedin.com/in/rizwansaeedchoudhry
- Dr. Raja, Amir, Azim, HOD Mechanical Department, (FYP Supervisor) NUST, raja.amer@gmail.com
- Brig, Waheed ul Haq, MD at ARDIC HIT, wuhsyed@gmail.com
- Kashif Shams Janjua, Chief Executive, Ideal Combined Industries, ideal_combined@hotmail.com