

İlkem KIRAL *Mechanical Engineer*

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📍 İstanbul, Türkiye

🚗 B Driving License



Education

2026 – 2027 İstanbul, Türkiye	Aerospace Structures and Materials Master of Science <i>Istanbul Technical University</i>
2015 – 2021 Edirne, Türkiye	Mechanical Engineering Bachelor of Science <i>Trakya University</i>
2018 – 2020 Eskişehir, Türkiye	Business Administration Open Education - Associate Degree <i>Anadolu University</i>

Professional Experience

2025 – Present İstanbul, Türkiye	Design QA and Validation Engineer - Lead Engineer <i>Gural Electrical Materials - Sector; Electromechanical Systems Manufacturing</i> - Managed 3D model and technical drawing validations, encompassing GD&T, tolerance chain analysis, and material code verification. - Controlled revision and ECO/ECR processes via the PDM system, ensuring robust documentation integrity and flow. - Evaluated design for manufacturability (DfMA) and implemented standardization initiatives to optimize material and labor costs. - Designed and executed necessary prototypes and test setups for design validation, supported by root cause analysis. - Proactively identified and resolved pre-application errors, significantly reducing losses such as downtime, scrap, and rework to enhance overall efficiency.
2024 – present İstanbul, Türkiye	R&D Engineer - Mechanical System <i>Gural Electrical Materials - Sector; Electromechanical Systems Manufacturing</i> - Designed and developed mechanical components for medium(1 kV-52 kV) and high-voltage (52 kV-550 kV) switch-disconnector, ensuring compliance with IEC 62271-1 & IEC 62271-102 standards. - Conducted finite element analysis (FEA) using SolidWorks Simulation to evaluate structural integrity and thermal performance under operational loads. - Optimized mechanical designs by integrating IEC 60947 guidelines, enhancing durability and operational efficiency. Regularly communicated with stakeholders to incorporate customer input. - Selected materials suitable for high-performance applications, ensuring alignment with ISO 9001 and ISO 10724 specifications. - Ensured manufacturability and performance consistency by incorporating precise tolerances, shrinkage allowances, and surface finishes in the design process. - Managed CNC machining processes, ensuring components met high-precision requirements and adhered to ASME Y14.5 tolerances while maintaining budget management. - Developed technical documentation, including 3D CAD models, FEA reports, and detailed assembly instructions, ensuring traceability and client approval readiness. - Collaborated with cross-functional teams to design and manufacture custom switchgear systems, meeting specific client requirements and industry benchmarks through effective communication and coordination to ensure customer satisfaction.

2022 – 2024
İstanbul, Türkiye

Mechanical Design Engineer

Global Molding - Sector; Thermoform Molding Manufacturing/Sub-production (Military, Defence, Aerospace)

- Designed thermoforming molds using Solidworks and CATIA V5, adhering to ISO 9001:2015 and AS9100 standards.
- Performed thermal and structural (FEA) analyses with ANSYS Workbench, ensuring compliance with industry standards.
- Selected heat-resistant and durable materials, considering ISO 10724 specifications for plastic mold design.
- Optimized cooling channels to enhance efficiency and meet performance criteria.
- Managed CNC machining and quality control processes to ensure high-precision mold production.
- Applied ISO 294-4 guidelines in mold manufacturing and testing phases.
- Implemented designs with accurate draft angles, shrinkage allowances, and venting systems for optimal mold performance. Actively involved in team discussions to meet evolving project requirements.
- Prepared detailed technical documentation, including CAD files, FEA reports, and quality inspection records, for project traceability and client approvals.
- Designed wing and tail fairings for UAVs using ABS and PETG, produced via thermoforming, adhering to AS9100.

2019 – 2019
İzmir, Türkiye

Intern Engineer

FTA Aviation - Sector; Defence, Aerospace, Military Manufacturing

- Part production & design (with Siemens NX) for engine components of 5th generation aircraft.
- Experienced in aerospace component design (ASME Y14.5) and manufacturing processes. Proficient in using NX and ANSYS CFX for design validation and analysis to optimize engineering solutions.

2017 – 2017
Alexandria, VA, USA

Lifeguard

Guardian Aquatics - Work and Travel

University Projects

2020	Computer-Aided Analysis of The Lifetime of The Split Rim in Wide Base Agricultural Wheels
2019	Computer-Aided Analysis of The Swing System in Motor Vehicles Stress and bending analysis of the lower control arm system in motor vehicles, which varies depending on the location, was performed.
2018	Lightining with Solar System The visibility effect of photocell street lamps on vehicles during night travel was examined.

Skills

CAD

Solidworks, Siemens NX, Catia V5, 3DX Catia V6, Autocad

System & Method Management

PDM, PLM, ERP

Social Skills

Multidisciplinary Teamwork, Hybrid Project Management, Analytical Thinking, Leadership

Analys

ANSYS Workbench (Structural, Thermal, Fluid), Mechanics of Materials, Dynamic and Vibration Behavior, Finite Element Analysis, SolidWorks Simulation

Industrial Standarts

ASME Y14.5, AS 9100, MIL-STD 810H, ISO 9001, ISO 14001, ISO 45001, DfMA

Certificates

GD&T

UCTEA Chamber of Mechanical Engineers

CSWA & CSWP | Solidworks

Dassault Systèmes

TEI Professional

TEI - TUSAS Motor Industry Inc.

TS EN ISO 14001:2015 | Environmental Management System

TS EN ISO 45001:2018 | Occupational Health and Safety Management System - Requirements and Guidance for Use

Strain Gauge Theoretical and Practical Training

Sensor Tek - HBM

TS EN ISO 9001:2015 | Quality Management System

TSE Academy

Specialist R&D Engineer Training

ISO Academy/The School of Technology & Innovation

ANSYS Fluent | Workbench

Numesys

Project Management Training

Mindset Institute

Organizations

2015 – 2021

Edirne, Türkiye

Design and Project Community

Trakya University | Member