



# PFE BOOK 2023

**Improve your career with new exciting opportunities...**

# BAKO IN A NUTSHELL

Bako Motors is the **first** Tunisian German startup that develops and manufactures Solar Electric vehicles powered by **sun**.





Our product

# Bako B1

- **Power:** 4000 W
- **Consumption cost:** 0.5 \$/100 km
- **Solar charging:** 350 km/week
- **Loading space:** 2000L
- **Payload:** 300 kg
- **L/W/H (mm):** 3460 / 1760 / 1853



# HOW TO APPLY ?

**1.**  
**Choose  
your topic**

Find the topic in the  
next pages

**2.**  
**Send your  
CV**

Send your CV with the  
reference topic to:  
**info@bakomotors.com**

**3.**  
**Pre-selection &  
Interview**

After the acceptance,  
we will welcome you  
for the interview.





# 2023

## PFE fields:

- Automotive manufacturing engineering
- Mechatronics
- Lean Management and Supply chain
- Quality
- IT and machine learning
- Design
- Marketing and Sales



# Mechanical Engineering

Vehicle's dynamic stability

- Number of trainees: 1
- Period: 4-6 months

## What you will do:

- Modelize different assembly parts of the vehicle.
- Study the suspension behavior on different roads.
- Study the gravitational dynamics.
- Optimize the results to the better vehicle stability.

## Required Expertise

- SolidWorks, Catia
- Matlab
- Good analyzing skills
- Teamwork skills and flexibility

SUBJECT: 1

# Electric Engineering

## Automotive Engineering

- Number of trainees: 1
- Period: 4-6 months

### What you will do:

- Create vehicle electrical harnesses.
- Analyze the EMC.
- Calculate the wire sections and length.
- Study the electrical safety.
- Validate the results through a test drive.

### Required Expertise

- CAD
- Matlab
- Good analyzing skills
- Teamwork skills and flexibility



# Industry Engineering

## Production

- Number of trainees: 1
- Period: 4-6 months

### **What you will do:**

- Production planning.
- Develop supply chain strategies.
- Participate in studies and implementation of new industrial methods in manufacturing to make tasks more efficient in the plant (balancing and layout of workstations, continuous improvement projects, Kaizen, 5S, Lean Manufacturing ...)
- Manage information flows and optimize the flow of parts from order to delivery.
- Simulation of the production line.

### **Required Expertise:**

- Arena, FlexSim, GPAO
- Good analyzing skills
- Teamwork skills and flexibility



# Quality Engineering

Quality (EU) 168/2013

- Number of trainees: 1
- Period: 4-6 months

## What you will do:

- Assist in obtaining compliance certification.
- Realize a monitoring plan for the control at the reception.
- Control the respect of the quality criteria by the suppliers and participate in the selection and evaluation of suppliers.
- Participate in the realization of internal audits.
- Ensure the production quality control.
- Ensure the implementation of the Quality tools.
- Participate in the implementation of the Quality Management system, alongside the process pilots.
- Ensure the treatment of non conformities.

## Required Expertise:

- ISO9001:2015
- Good analyzing skills
- Teamwork skills and flexibility

# Customer quality

Management of product quality and after-sales service

- Number of trainees: 1
- Period: 4-6 months

## What you will do:

- Measure customer satisfaction.
- Study and implement corrective and preventive actions to reduce customer complaints.
- Participate in the management review.
- Study Carry out the procedures for managing complaints.
- Participate in the organization and management of the after-sales service.
- Participate in the repair of defects on the vehicle.

## Required Expertise:

- ISO 9001:2015
- Electronics and electric knowledge



# Quality Engineering

## QHSE

- Number of trainees: 1
- Period: 4-6 months

### **What you will do:**

- Preliminary study for the implementation of an occupational health and safety management system according to ISO 45001:2018.
- Identify, analyze and prevent the risks in the production process.
- Carry out diagnostics.
- Ensure the necessary documentation.

### **Required Expertise:**

- ISO 45001:2018
- Good analyzing skills
- Teamwork skills and flexibility

# IT Engineering & Machine learning

## Embedded system

### What you will do:

- Ensure the car parts detection during the production.
- Save and analyze the production Database
- Create and manipulate the data made in the factory.

### Required Expertise:

- IA
- I.o.T
- Python
- SQL, HTML, C++
- Good analyzing skills
- Teamwork skills and flexibility

- Number of trainees: 1
- Period: 4-6 months



# Embedded system

## Embedded application development

- Number of trainees: 1
- Period: 4-6 months

### What you will do:

- Collect real-time data from the vehicle.
- Create graphical user interface in C++ with Qt.

### Required Expertise:

- Qt's framework
- C++
- Raspberry pi 4 skills
- Good analyzing skills
- Teamwork skills and flexibility

# UX/UI & Motion Design

## Platforms design

- Number of trainees: 1
- Period: 3-4 months

### **What you will do:**

- Support the team in the website development and interface design.
- Work on the graphic chart and help to improve the graphic universe.
- Work on 3D/2D animation to support the marketing and software design team.

### **Required Expertise:**

- Adobe: PS, AI, XD
- Good analyzing skills
- Teamwork skills and flexibility



# 3D Modeler

## Car parts Modeling

- Number of trainees: 1
- Period: 3-4 months

### **What you will do:**

- Work with the R&D team on the 3D modeling
- Generate high quality surfaces.
- Work on the technical specs of the parts
- Generate high quality renderings using render engines

### **Required Expertise:**

- Catia, Alias, Blender
- Keyshot, Vred, Corona
- Understanding the technical data
- Good analyzing skills
- Teamwork skills and flexibility

# Industrial / Product Design

Future products design

- Number of trainees: 1
- Period: 3-4 months

## What you will do:

- Make preliminary sketches of several projects designs, including interior and exterior design.
- Use computer-aided design (CAD) software to create three-dimensional mockups, preliminary models.
- Participate in the creative process including market and project research, ergonomics, design brief, UX and Prototype.

## Required Expertise:

- Free hand sketch and/or digital sketch.
- Modeling software: SolidWorks, ALIAS...
- Technical background.
- Teamwork skills and flexibility.
- Good creative mindset, under pressure work capability.

SUBJECT: 11



# Marketing Management

Digital marketing

- Number of trainees: 1
- Period: 4-6 months

## What you will do:

- Perform a market analysis and research on the latest trends.
- Create the social media posting schedule.
- Present new social media campaign ideas.
- Contribute to the planning and hosting of marketing events.
- Work on the SEO, SEM and Google Analytics.

## Required Expertise:

- Social media
- SEO, SEM, Google Analytics
- Good communication skills
- Teamwork skills and flexibility
- Adobe PS, AI, Premiere Pro (preferable)

# Finance

## Financial Analysis and Forecasting

- Number of trainees: 1
- Period: 4-6 months

### **What you will do:**

- Define financial models, templates, statements, sheets, and elements.
- Create and use different methods for financial forecasting.

### **Required Expertise:**

- Microsoft office
- Good analyzing skills
- Teamwork skills and flexibility



# Sales

## Sales Management

- Number of trainees: 1
- Period: 4-6 months

### **What you will do:**

- Research and generate lists of potential customers.
- Participate in meetings with clients, or other staff members to discuss sales goal or marketing strategies.
- Provide customers with information about products.
- Develop new business opportunities through networking and relationship building with new clients.
- Work on MAAS.

### **Required Expertise:**

- Good analyzing skills
- Teamwork skills and flexibility
- Good communication skills

# Business Development

## Business study

- Number of trainees: 1
- Period: 4-6 months

### What you will do:

- Conduct competitive analysis of startups in the MENA region.
- Analyze the customer behavior and anticipate market trends to develop solutions to customer problems and needs.
- Analyze sales and trends to promote ideas for sustained revenue growth.
- Identify and evaluate new customers to increase the sales targets and marketing campaign audience.
- Support the search for new suitable business partners to increase the the networking capabilities and customer reach.

### Required Expertise:

- Managerial mindset
- Negotiation and persuasion capabilities
- Good interpersonal skills



# Administration

## HR

- Number of trainees: 1
- Period: 4-6 months

### **What you will do:**

- Update the internal databases with new employees' information
- Schedule and confirm interviews with candidates.
- Review and share company policies.
- Participate in organizing the company's events and careers days.

### **Required Expertise:**

- Teamwork skills and flexibility
- Good communication skills

# Develop your **career** with new exciting Opportunities...



FIND US:



 <https://goo.gl/maps/RCDBGJK5P12u4WrMA>