

## CAREER OPPORTUNITY

The Council for Scientific and Industrial Research (CSIR) is a leading scientific and technology research organisation that researches, develops, localises and diffuses technologies to accelerate socio-economic prosperity in South Africa. The organisation's work contributes to industrial development and supports a capable state.

### Principal System Design Engineer

#### About the job:

The CSIR has vacancy for a **Principal System Design Engineer** in the Mining Cluster area within Division 2. The main purpose of this position will be to define and lead the development of complex mining systems, across multidisciplinary engineering discipline. To support the mining industry in accelerating people centred modernisation drive and the adoption of appropriate innovations across the mining value chain. This position is based in Pretoria.

For more info about the unit, please visit: <https://www.csir.co.za/future-production-mining>

#### Key responsibilities:

- Translate mining process problem or customer needs into specific, well written requirements to which systems and sub-systems can be architected and designed.
- Design, building an Engineering system from subsystems and components to integrate the solutions into the Mining system value chain including supporting the fine tuning of a process to stability.
- Understand the inherent risk associated with introducing of new innovations into a mining system and to conduct a risk-based analysis to ensure that the subsystem and systems designs meet the requirements.
- Model the process to analyse the risk and to engineer the mitigations to reduce or eliminate the risk, for successful application of the solution.
- Compile a system or product test procedures to be used during step or validation tests. Conduct validation or verification test e.g. Factory testing of the application of the product solution to ensure it meets the desired specifications prior to installation.
- Develop the product operating procedure and be able to train the user on the product application through its product life cycle.
- Understand subsystems interfaces to identify the process value chain dependencies to ensure the coherent application of product /solution.
- Lead multi-disciplinary project teams to work together in delivering the desired product solution. This includes interface with the customer to detail the user requirements and translate these to the project team and into a workable solution for the client.
- Facilitate and drive regular client stakeholder engagement including post project evaluation with the impact area managers to understand the use of testing and research results for clients' decision support and value add.
- Drive the strategic engagements with current customers and support impact areas managers to formulate an added value proposition and determine a value-based contracting.

- Drive the scoping, costing of proposals, for a balanced programme with minimum target of R 15 Million with potential to grow and establish diffusion of solutions in line with the cluster's strategy roadmap.

### Qualifications, skills and experience:

- A Bachelor's degree in electrical or electronics engineering with at seven years' experience.
- ECSA registration
- A Masters' degree in electronic, electrical, computer engineering, computer science, data science or information technology with ten years' experience will be an added advantage.
- During the above seven years of experience there should be at least five years working experience in:
  - Mining industry will be an added advantage
  - Synthesizing problem statements and detailing user requirements specifications (URS)
  - Engineering design and manufacturing of projects
  - Implementation of engineering solutions
  - Managing projects with proper governance followed
  - Solving mining related challenges with a focus on engineering solutions and other related challenges
  - Establishing and maintaining links with internal and external stakeholders and clients, as well as the research community.
- Experience in programming languages Python, C/C++ Java, Perl, Ruby, scripting in bash, Lua, and the use of integration technologies SCP , SSH , Connect Direct , MQFTE and SQL-based technologies;
- In-depth knowledge of mining value chain, processes, management systems, engineering equipment's and how all is integrated into running the operations.
- Ability to lead innovation and technology adoption in the mining industry.
- Ability to generate new knowledge and innovate.
- Ability to work independently, and as a team player.
- Good interpersonal skills.
- Problem-solving and solution-seeking orientation.
- Excellent English communication, presentation and writing skills, including the publication of technical outputs.
- Competencies: Analytical thinking; conceptual thinking, customer service orientation, initiative, networking and liaison; numerical reasoning; planning and organising; process engineering -and system competence and teamwork.
- To travel to mining clients and industry manufacturing sites.

Should you meet the above requirements, please email your CV to [Recruitment02@csir.co.za](mailto:Recruitment02@csir.co.za) with your name and surname, position title and reference number in the subject line, **(eg. John Smith: Job title: Reference No: 311921)**

**Closing date: 31 January 2022**

**PLEASE NOTE THAT FEEDBACK WILL BE GIVEN TO SHORTLISTED CANDIDATES ONLY.**

For more info, please contact the CSIR Recruitment Centre on **012 841 4774** or email us at [Recruitment02@csir.co.za](mailto:Recruitment02@csir.co.za)

*The CSIR is an equal opportunity employer. As such, it is committed to the employment Equity Act and will through the filling of this vacancy, give preference to candidates from designated groups in terms of the Employment Equity Act. By applying for this position at the*

*CSIR, the applicant understands, and agrees that the CSIR may solicit a credit and criminal report from registered credit bureau and/or South African Police Services (in relation to positions that requires trust and honesty and/or entail the handling of cash or finances), and may also verify the applicant's educational qualification and employment history. **The CSIR reserves the right to remove the advertisement at any time before the stated closing date and it further reserves the right not to appoint if a suitable candidate is not identified.***