

VACANCY ANNOUNCEMENT

Position: Tutor – Residential Electrical Installation and Solar Energy Systems

Duty Station

Nyamirembe, Chato, Gaita

Position Summary

The institution invites applications from suitably qualified and experienced candidates for the position of **Tutor – Residential Electrical Installation and Solar Energy Systems**. The successful candidate will deliver competency-based theoretical and practical training in residential electrical installation, photovoltaic (PV) systems, battery energy storage, electrical inspection and testing, smart home technologies, and energy-efficient electrical systems. The tutor will supervise laboratory and workshop practicals, student projects, and industrial training while supporting curriculum development, innovation, and community outreach.

Minimum Qualifications

Applicants must possess:

- A **Bachelor's Degree** in Electrical Engineering, Electrical Power Engineering, Renewable Energy Engineering, Electromechanical Engineering, Building Services Engineering, or a closely related field;

OR

- A **Diploma, Full Technician Certificate (FTC), or VETA qualification** in Electrical Installation, Electrical Engineering, Renewable Energy, Electromechanical Engineering, or a related discipline **with at least five (5) years of relevant industrial experience**.

Professional certifications in **solar photovoltaic (PV) installation, electrical installation, or renewable energy systems** will be an added advantage.

Key Responsibilities

The successful candidate will:

- Deliver lectures, tutorials, laboratory practicals, and workshop sessions.
- Prepare lesson plans, practical manuals, instructional materials, and assessments.
- Supervise student practical projects and industrial attachments.
- Maintain electrical installation and solar energy laboratories and workshops.
- Ensure compliance with electrical safety standards and safe working practices.
- Participate in curriculum development and quality assurance activities.
- Assess student performance and provide academic guidance.
- Support applied research, innovation, and community service projects.

Required Technical Competencies

Electrical Installation Fundamentals

- Electrical principles
- AC and DC fundamentals
- Single-phase and three-phase systems
- Electrical measurements
- Electrical drawings and symbols
- Load calculations
- Voltage drop calculations

Residential Electrical Installation

- Domestic wiring systems
- Lighting circuits
- Socket outlet circuits
- Cooker circuits
- Water heater circuits
- Air-conditioner circuits
- Consumer units (distribution boards)
- Cable selection and sizing
- Conduit and trunking installation
- Surface and concealed wiring
- Earthing and bonding systems

Electrical Protection

- Circuit breakers (MCBs and MCCBs)
- Residual Current Devices (RCDs/RCCBs)
- Residual Current Breakers with Overcurrent Protection (RCBOs)
- Surge Protection Devices (SPDs)
- Fuses
- Earth leakage protection
- Short-circuit and overload protection
- Electrical fault analysis

Solar Photovoltaic (PV) Systems

- Solar energy fundamentals
- Solar PV modules
- Charge controllers (PWM and MPPT)
- Solar inverters (string, hybrid, and microinverters)
- Battery energy storage systems
- Off-grid systems
- Grid-connected systems
- Hybrid solar systems

- PV array design
- PV system sizing
- Cable sizing for PV systems
- PV system installation and commissioning
- Solar system maintenance and troubleshooting

Battery Technologies

- Lead-acid batteries
- Lithium-ion batteries
- Battery Management Systems (BMS)
- Battery sizing
- Battery safety
- Battery testing and maintenance

Smart Home Electrical Systems

- Smart lighting
- Smart switches
- Smart energy monitoring
- Home automation basics
- Internet of Things (IoT) applications for residential buildings
- Smart meters

Electric Vehicle (EV) Charging Systems

- Residential EV charging fundamentals
- EV charger installation
- Electrical protection requirements
- Load management considerations

Electrical Inspection, Testing and Commissioning

- Visual inspection
- Continuity testing
- Insulation resistance testing
- Earth resistance testing
- Earth fault loop impedance (where applicable)
- Polarity testing
- Functional testing
- Commissioning procedures

Electrical Safety

- Safe isolation procedures
- Lockout/Tagout (LOTO)
- Personal Protective Equipment (PPE)
- Electrical hazard identification
- First aid for electrical accidents

- Fire safety

Renewable Energy Integration

- Solar and grid integration
- Backup power systems
- Generators
- Uninterruptible Power Supplies (UPS)
- Energy efficiency
- Residential energy management

Instrumentation and Test Equipment

Practical experience using:

- Digital multimeter
- Clamp meter
- Insulation resistance tester (Megger)
- Earth resistance tester
- Continuity tester
- Voltage tester
- Solar irradiance meter
- PV installation test equipment

Engineering Software

Experience with one or more of:

- AutoCAD Electrical
- PVsyst
- HelioScope (or equivalent PV design software)
- MATLAB/Simulink (basic)
- Microsoft Office applications

Basic Programming (Desirable)

Knowledge of:

- PLC fundamentals
- Smart home programming (basic)
- Python (basic)
- Arduino (basic)

Electrical Codes and Standards

Knowledge of:

- IEC electrical installation standards
- National electrical wiring regulations
- Renewable energy installation standards

- Occupational health and safety regulations

Desired Competencies

- Strong practical electrical installation skills.
- Experience in solar PV system installation and maintenance.
- Ability to integrate theory with hands-on practical training.
- Excellent communication and instructional skills.
- Strong troubleshooting and fault-finding abilities.
- Commitment to competency-based education and continuous professional development.
- Ability to supervise workshops safely and effectively.

Salary and Benefits

This is a private institution. Remuneration will be offered in accordance with the institution's approved salary structure, which is **benchmarked against the Tanzania Government Service (TGS) Salary Scale**, taking into account the candidate's qualifications, experience, and responsibilities of the position

Application Procedure

Interested candidates should submit:

- Curriculum Vitae (CV)
- Copies of academic and professional certificates

To: **careers@rct.ac.tz**

If you do not receive an acceptance reply message from us in two days, please re-submit your application..