Job Title: Instrumentation & Control Engineer IO0954

Req ID **1782** - Posted **22/05/2020** - (France, 13067 St Paul Lez Durance Cedex) - **Engineering of Systems** - **New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

Application deadline: 05/07/2020
Domain: Engineering
Department: Engineering Design
Division: Fuel Cycle
Section: Fuelling & Wall Conditioning
Job Family: Project Engineering
Job Role: Engineer - 2
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

As an Instrumentation and Control (I&C) Engineer within the Fuelling & Wall Conditioning Section (FWC), you will be responsible for the ITER FWC I&C. This includes FWC System local control and interfaces to ITER's central control systems. This position has technical responsibility of FWC I&C system from design through to operations and maintenance.

The design will include preparation of documents such as control architecture, FWC I&C standards, sequence and logic description, single-line diagrams, component technical specifications, equipment layout, cable routing, alarm handling, equipment qualification plans, operation and maintenance plans. Work includes Human Machine Interface design and controller programming.

Once the final design is approved, the I&C Engineer will follow the control system installation to ensure design compliance, and will provide I&C technical leadership during commissioning and operation. Activities shall be performed in a formal, quality-assured environment consistent with a nuclear facility that requires rigour and a systematic way of working.

Background:
The FWC System integrates with the Plasma Control System (PCS) and shall provide fuel particles into the plasma and control impurities inside the tokamak to ensure a stable plasma operation. The FWC I&C systems together with the Central Control Systems, monitor the plasma and plant parameters, and

adjustment of operations if required. It also responds to abnormal and accidental events to protect the machine, workers and environment.
It is anticipated that once the I&C Engineer takes up duty, they will perform some tasks specifically based on the Disruption Mitigation System (DMS), which provides a machine protection function in the case of abnormal plasma events, so called disruptions. Training will be provided as needed.

Major Duties/Roles & Responsibilities

- Is responsible for the design and selection of I&C devices used in the FWC System ensuring that they meet process system requirements and interface successfully with the centralized control systems;
- Plans and prepares I&C integration activities for the FWC facilities and systems, including control system interfaces and layout organization of control/electrical cubicles;
- Participates in the design and implementation of interlocks necessary for ITER's successful and safe operation to international standards;
- Writes technical specifications for the FWC System I&C procurement, liaises with the Procurement and Contracts Division during tender process, manages the contract and delivery of material to the ITER site;
- Is responsible for compiling and maintaining I&C design basis documentation and supporting documents;
- Plans, implements and monitors provisions for installation, testing, maintenance and commissioning ensuring that it is compliant with the process design;
- Provides input to the qualification programme for field mounted I&C devices;
- Contributes to the management of the final design and provides ongoing support as a member of the Delegated Design Authority of ITER as necessary;
- Provides expertise and technical advices to machine assembly and commissioning teams to resolve requirements and performance issues across various systems;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, weekends and public holidays.

Special notice: May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization.

Measures of Effectiveness

- Ensures that engineering, procurement and implementation activities are completed according to the required time schedule, to a high quality and within the authorized budget;
- Performs work in compliance with IO quality and safety requirements;
- Efficiently resolves design and interfaces issues for FWC in a systematic and professional manner;
- Communicates and collaborates effectively and harmoniously with all internal and external stakeholders;
- Ensures that provisions for installation, testing, maintenance and commissioning are aligned the process design within the agreed framework.

Experience & Profile

- ***Professional Experience:***
  - At least 8 years' experience of designing, and managing the procurement, manufacture, testing, installation, commissioning and operation of the entire life cycle of I&C systems or similar.
- ***Education:***
  - Master degree or equivalent in electric or I&C engineering or other relevant discipline;
  - The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.

- ***Language requirements:***
  - Fluent in English (written and spoken).
- ***Technical Competencies and demonstrated experience in:***
  - Designing and implementing process control and automation;
  - Applying quality assurance and quality control standards:
  - Managing projects including the monitoring of procurement over the lifecycle of the contract from writing specifications to managing deliverables;
  - Programing and implementing hardware and software interlocks and associated commissioning and fault resolution;
  - Nuclear fusion technologies, nuclear power plant, particle accelerators or a tokamak (or similar) environment would be advantageous;
  - Using Siemens S7, EPIC or National Instruments would be advantageous;
  - Coordinating activities, defining and managing interfaces with various stakeholders;
  - Generating single line and control logic diagrams is advantageous;
  - Driving root cause analysis for a system involving various disciplines such as tritium safety, nuclear licensing, cryogenic system, vacuum pumping system and plasma physics knowledge is advantageous.
- ***Behavioral Competencies:***
  - Collaborate: Ability to dialogue with a wide variety of contributors and stakeholders;
  - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
  - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
  - Manage Complexity: Ability to gather multiple and diverse sources of information to understand problems accurately before moving to proposals;
  - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

The following important information shall apply to all jobs at ITER Organization:

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, **r**adioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by lline management and that may jeopardize the achievement of the Project’s objectives.