

<b>TITLE: Vacuum Instrumentation Engineer</b>		<b>CEP-064</b>
<b>REPORTS TO LINE MANAGER: Leader of Vacuum Section; Department of Central Engineering and Plant Support</b>		
<b>DIRECT EMPLOYMENT: NOT REQUIRED</b>		<b>GRADE: P3-P4</b>
<b>Date Written: July 2007</b>	<b>Date Revised:</b>	<b>Date Revised:</b>

**Purpose:**

To specify, design, and integrate the vacuum and cryogenic control and instrumentation within the ITER Vacuum Section. To provide expert support in this field for relevant procurement packages.

**Major Duties/Responsibilities:**

During the initial period of assignment, the successful candidate shall have the necessary expertise and skills to take several responsibilities among those listed below. When new staff will be assigned to the Vacuum Section duties and responsibility will be reviewed.

- Design of vacuum instrumentation for the measure of total and partial pressure, flows, temperature, and valve positions for systems under the responsibility of the ITER Vacuum Section.
- Design of control systems necessary for the successful operation of the ITER vacuum system including pumps and control systems for all of the primary vacuum valves.
- Design of cryogenic measurements necessary for monitoring performance of ITER cryogenic pumps and cryo-distributions systems.
- Integration and of vacuum control and instrumentation with the CODAC system.
- Design of dedicated hardwired interlocks necessary for ITER vacuum and vessel related safety and machine protection systems.
- Layout of electrical cubicles and cable routes for vacuum control and instrumentation.
- Initiation of R&D tasks for the development of any necessary novel, radiation or magnetic field tolerant instrumentation.
- Provide assistance to Participant Team and other IT groups, to aid with achieving a high level of component standardisation.
- Develop and review relevant C&I documentation including ITER vacuum Baseline Documents.

**Qualifications Required:**

- University degree in Electrical or Electronic Engineering.
- At least 10 years experience in control and instrumentation experience relating to the control of large complex plant.
- At least 5 years experience with vacuum and cryogenic instrumentation

- Experience of engineering in nuclear environment and of the susceptibility of electronic to ionizing radiation.
- International standards and safety in electrical installation.
- Modern industrial control and instrumentation equipment including PLCs and Field Bus technology.
- Computing techniques, software design and real time systems.
- Complex process plant including DCS and SCADA.
- Analogue and digital electronics.
- Good communication skills in written and spoken English.
- Proven ability to work effectively in a team and a multi-cultural environment.

**Work Direction and Interfaces:**

Reports to the DDG for Central Engineering and Plant Support Department. Close co-operation with and good understanding of the requirements and design of the ITER Plant.

**Authority/Approval Levels:**

Has authority and approval levels generally defined by the DG for his/her scope of work.

**Measures of Effectiveness:**

- Successfully supports C&I aspects of ITER Vacuum Pumping Systems design, including specification and selection of all required instrumentation, identification of any R&D needed to meet particular requirements of the ITER environment and establishment of an R&D schedule and means of its implementation.
- Establishes a mechanism for ITER Vacuum Pumping Systems C&I integration and control of interfaces with other pertinent ITER systems.
- Successfully evolves vacuum pumping C&I design related activities in liaison with and in conformance with the requirements of ITER CODAC.
- Successfully communicates with other groups in ITER International Team on vacuum pumping C&I interfacing issues.
- Successfully coordinates and direct efforts of the ITER International Team and the PT's in respect to design and construction of the C&I components of ITER Vacuum Pumping Systems.