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## JOB DETAIL

Ref. IO1153 - 10/27/2011

## Coil Instrumentation&amp;Controls Eng Officer TKM-049

<b>Main job</b>	Electronics
<b>Department</b>	DIP/Directorate for Tokamak
<b>Division</b>	TKM / Magnet Division
<b>Section</b>	TKM / MAG / Superconductor Systems and Auxiliaries Section
<b>Job Family</b>	Project engineering
<b>Application Deadline</b>	30/Nov/2011
<b>Grade</b>	P3
<b>Direct employment</b>	Not required
<b>Purpose</b>	To design components, launch procurement contracts and conduct their follow-up in the field of superconducting magnets quench detection, high voltage instrumentation and control systems, some of which fall in the domain of nuclear safety.
<b>Main duties / Responsibilities</b>	<ul style="list-style-type: none"> <li>• With the use of electromagnetic analysis results, designs and develops quench detection electronics to be compliant with an environment including changing magnetic fields and nuclear radiation;</li> <li>• In close interaction with the magnet systems designers, designs and develops high voltage instrumentation components;</li> <li>• Writes procurement specifications for the instrumentation components and control equipment, places the related contracts and performs the follow-up with strong involvement in the quality assurance and control aspects;</li> <li>• Understands functionalities of the cryogenic instrumentation and implements a safety quench detection system interfacing with the ITER Central Safety System;</li> <li>• Designs and develops control equipment related to the interfaces of the magnets' investment protection equipment with the Central Interlock System;</li> <li>• Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, values and ethics.</li> </ul>
<b>Measures of effectiveness</b>	<ul style="list-style-type: none"> <li>• Completes specifications and places contracts in a timely manner according to the project schedules;</li> <li>• Completes the procurement activities in a timely manner and within the defined costs; instrumentation components and control equipment must be available at the milestones fixed by the project;</li> <li>• Communicates critical information to his/her superior in a timely manner in order not to jeopardise the progress of activities;</li> <li>• Writes the relevant documentation and makes it available at defined steps of the development/manufacturing/installation process.</li> </ul>
<b>Level of study</b>	Master or higher degree
<b>Diploma</b>	analog/digital electronics, controls systems
<b>Level of experience</b>	At least 8 years
<b>Technical experience</b>	<ul style="list-style-type: none"> <li>-Good understanding of the aspects related to quench detection &amp; protection in superconducting magnets systems, with at least 8 years' experience in this area;</li> <li>-Exp in the design &amp; operation of superconducting magnet systems in tokamaks is desirable;</li> <li>-At least 5 years' exp in the design of analog/digital electronics, with emphasis in the associated controls aspects like interfacing to data acquisition systems, protection interlocks and safety systems;</li> <li>-At least 5 years' exp in the domain of large superconducting magnets facilities, with a clear understanding in cryogenics &amp; high voltage applications;</li> <li>-Exp in insulation materials and their applications for vacuum and cryogenic environment;</li> <li>-Exp in radiation-hard and tolerant electronic components;</li> </ul>

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-At least 5 years' exp in relevant contracts follow-up & related quality assurance aspects (inspection plan, quality assurance programs, factory acceptance tests, etc);  
-Project exp: good understanding of an engineering document plan.

**Project experience** 2 to 4 years

**Social skills** Ability to work effectively in a multi-cultural environment  
Ability to work in a team and to promote team spirit

**Specific skills** MS Office standard (Word, Excel, PowerPoint, Outlook)

**General skills** •Education: PhD in Electronics/Controls would be an advantage.  
•Computer and IT skills:  
- Efficiency running electro-magnetic simulation codes and performing analysis of the results;  
- Some knowledge of a Computer Aided Electronics package.

**Free criteria** • Reports to the Magnet Division Head, under the coordination of both the Superconductor Systems and Auxiliaries Section Leader and the ITER Magnets' Instrumentation Responsible Officer;  
• Interfaces extensively with other groups, especially with the one responsible for the controls and data acquisition systems in ITER;  
• Interfaces with the Domestic Agencies' teams which follow the manufacturing contracts for coils, feeders, structures and supports.

**Languages** English (Working)

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