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Ref. IO2151 - 8/7/2019

Mechanical Integration Engineer TED-157

Main job Mechanics

Department TED / Tokamak Engineering Department

Division TED / Heating & Current Drive Division

Section TED / HCD / Neutral Beam Section

Job Family Engineer - 1

Application Deadline (MM/DD/YYYY) 09/10/2019

Grade P2

Direct employment Not required

Purpose To be responsible for mechanical engineering activities of ITER's Neutral Beams (NB) by carrying out Finite Element analysis and by performing tasks of design as needed for the integration and installation, and contributing to the engineering work packages for construction activities, as a part of updated load specifications and/or updated or changed design solution.

Background:

ITER NB has two Heating Neutral Beam (HNB) systems with provision for a third HNB and one Diagnostic Neutral Beam system. These mechanical systems are to be installed in a large room called NB cell at Level 2. The related electrical paraphernalia are installed in the High Voltage Deck room which is at level 3 (above the NB cell). While components of these systems are in their advanced stage; the design and analysis activities for installation and system integration have become necessary in order to generate technical documents which will eventually form the inputs for construction activities. The staged approach of ITER's construction envisages that some of the important components have to be installed prior to 2025 (first plasma date).

Please note that an organizational restructuring is planned in accordance with the needs of the organization and the evolution of the project phases. In this context, the unit of assignment of the present position may be updated in late 2019, early 2020.

Main duties / Responsibilities In coordination with component engineers of NB section:

- Actively performs the structural analysis by finite element method followed by verification with ASME/RCC-MR codes;
- Carries out the design integration and installation activities as required.
- Performs technical management of interfaces at systems level including the adjoining/associated buildings;
- Performs finite element analysis activities as required for verifying as-built interfaces of the building for their compatibility with the loads from the NB component side;
- Develops and checks installation sequences, and subsequently performs clash analysis to contribute to the NB construction process;
- Writes Engineering Work Packages (EWPs) and ensures that the engineering technical inputs are compatible with the constructability from a technical perspective;
- Liaises with component engineers of NB section for the technical development of NB mechanical components and performs the mechanical engineering assigned tasks of the NB design integration;
- Provides support to the NB team, throughout system integration activities of NB components to ensure the system meets ITER specifications.
- Identifies, controls and reports variances on all technical, cost and schedule aspects, follows them and contributes to the risk management by proposing solutions to mitigate the impact;
- Issues regular reports on the progress of sensors, Instrumentation & Control (I&C) systems and interlock systems during design and procurement;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Contributes to the deviation and non-conformity reports in assembly and installation activities;
- May be required to work outside ITER Organization reference working hours, including nights, weekends and public holidays.

Measures of effectiveness	Effectively performs the finite element analysis using ITER procedures and efficiently performs, in coordination with NB component engineers, the NB design integration and installation design tasks; Ensures that technical solutions of system level interfaces from NB with other systems are defined and technically managed adequately during the life cycle development; Produces and maintains high quality technical documentation; Reports variances on all technical, cost and schedule aspects immediately to the line management, analyses the impact and proposes solutions; Identifies from time to time, technical issues of the ITER NB systems adequately and manages the technical part of them effectively during their life cycle; Issues the deviation and non-conformity reports and manages efficiently their progress through the relevant QA processes on an as needed basis.
Level of study	Master or equivalent degree
Diploma	Mechanical Engineering or other
Level of experience	At least 5 years
Technical experience/knowledge	At least 5 years' experience in mechanical engineering for large complex systems for manufacturing, assembly, installation and integration activities; Good knowledge and experience of Finite Element analysis. Using Finite Element Analysis, developing models and calculations, and applying engineering codes and standards such as ASME or RCC-MR; Writing technical reports and procurement specifications; Reviewing CAD activities; Integration and installation of complex components or systems; Neutral beam technology would be advantageous; Scheduling activities for scientific or technical projects is considered as advantageous; The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.
General skills	Collaborate: Ability to conduct dialogues with a wide variety of actors and stakeholders; Communicate: 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 assimilate multiple and diverse sources of information to understand problems accurately before moving to proposals/solutions; Ethical values to instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity and to adopt to cultural diversity.
Languages	English (Fluent)

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