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JOB DETAIL

Ref. IO2085 - 2/27/2019

CODAC Applications Engineer SCOD-058

Main job	Software
Department	SCOD / Science & Operations Department
Division	SCOD / Control System Division
Section	SCOD / CSD / CODAC Section
Job Family	Engineer - 1
Application Deadline (MM/DD/YYYY)	04/14/2019
Grade	P2
Direct employment	Not required
Purpose	To contribute to the final design of the Control, Data Access and Communication (CODAC) Operational Applications (central supervision and automation, plant configuration, scheduling system) in a collaborative environment; To contribute to the final design of the Plasma Control System distributed real-time software architecture; To participate in the implementation and maintenance of CODAC Operational Applications software frameworks and components; To apply CODAC standards related to software quality assurance for high availability control software applications. Background information: The ITER Control, Data Access and Communication (CODAC) system interfaces to the ~170 Plant Systems that compose the ITER machine. CODAC provides the necessary applications and services to support commissioning activities and eventually conduct the integrated operation of the ITER machine with a high level of availability. The Plant Systems are delivered with their Instrumentation and Control (I&C) system by the ITER members. Integration started in 2018 and will continue up to first plasma in 2025 and beyond.
Main duties / Responsibilities	CODAC Operational Applications consist of middle-layer software components which adapt the technical domain of the various Plant Systems to the Machine Operation domain, i.e. provide information gathering and synthesis, translate physics goals to machine parameters and control actions, etc.; and central Scheduling, Supervision and Automation, and Plasma Control systems to prepare and execute planned ahead commissioning and scientific operation campaigns. Develops and maintains CODAC Operational Applications software frameworks and components in the areas of: – Plant System I&C Configuration, – Monitoring, and Interface adaptation; – Central Supervision and Automation; – Pulse Scheduling; – Plasma Control System Gathers, analyses and documents stakeholder requirement specifications; Contributes to CODAC Operational Applications design reviews, as either a member of the design team or peer review team; Provides technical follow-up of software development projects contracted to external suppliers and assesses their compliance to requirement & quality standards; Analyses Plant System I&C configuration and automation requirements to ensure robust and repeatable Plant System operating procedures; Resolves software issues with already-deployed operational software; Maintains and enhances functional, integration, system, stress, performance and regression test suites; Promotes CODAC standard tools and processes to Plant System I&C and Machine Operation Stakeholders; Mentors and supports other members of the CODAC Operational Applications team in key areas of expertise; May be requested to be part of any of the project/construction teams and to perform other duties; May be required to take part in the on-call duty service established by the ITER Organization (IO) outside ITER Organization reference normal working hours, including nights, weekends and public holidays.
Measures of effectiveness	Reports to the CODAC Section Leader; Interfaces with other members of the CODAC Operational Applications team and Machine Operation stakeholders; Interfaces with I&C teams affiliated with ITER Central

	Team, Domestic Agencies and external suppliers. Delivers planned releases of CODAC Operational Application software components through peer reviews and quality audits as per requirements and on time; Efficiently provides robust procedures, standards, solutions and guidance to during integration, commissioning, operation and maintenance activities; Maintains operational software with a high degree of availability; Maintains up-to-date documentation related to software components.
Level of study	Master or equivalent degree
Diploma	computer science, electronics, or other
Level of experience	At least 5 years
Technical experience/knowledge	At least 5 years of experience in designing, testing and maintaining software components involved in operating a large scientific research facility; Experience in dealing with multiple control system stakeholders (physicists, technical domain experts, etc.); Experience in software-intensive distributed real-time data processing and control systems; Experience in a Linux environment; Experience with version control tools (e.g., Subversion, Git); Experience with unit testing frameworks (e.g. gtest, …); Experience with debuggers and profilers (e.g., gdb, valgrind, …); Advanced knowledge of C++, python; Knowledge of principles of writing clean, maintainable software; Knowledge of principles of writing easily adaptable software to changing requirements; Experience with continuous integration tools (e.g., Jenkins, …) would be an advantage; Experience with quality standards for high integrity software (e.g. MISRA, HIC++, …) would be an advantage;
General skills	Excellent organizational skills and the ability to set priorities and meet deadlines; 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 with high level of reliability and autonomy; Manage Complexity: Ability to gather multiple and diverse sources of information to define problems accurately will the ability to set priorities and meet deadlines before moving to proposals; Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.
Others	Extensive experience in similar jobs (involving similar work responsibilities) and/or additional training certificates in relevant domains may be considered a reasonable substitute for the required educational degree; Experience with static analysis tools (e.g., lint, SonarQube or commercial tools) would be an advantage;
Languages	English (Fluent)