

# IO2067 Software Integration Engineer SCOD-046

## General information

Job category	Standard
Status	Published
Department	SCOD / Science & Operations Department
Division	SCOD / Control System Division
Section	SCOD / CSD / CODAC Section

## Job description

Main job	Computer Science - Software
Title of the position	Software Integration Engineer SCOD-046
Job family	Engineer - 2
Grade	P3
Direct employment	Not required
Purpose	<p>Background information: ITER's Central Control System, CODAC, consists of ~250 software projects totaling ~5 million source lines of code (SLOC). The Control System Division is responsible for integrating ~170 plant systems I&amp;Cs (Instrumentation and Controls) as provided by the ITER members for use within the central control system. The integration of I&amp;C projects started in 2018 and will continue up to first plasma in 2025 and beyond. Each I&amp;C Project is expected to deliver one or several software packages. ITER's software development and quality standards have already been established alongside the development of software frameworks designed to accommodate both the CODAC and I&amp;C development. These are based on the ISO/IEC 12207 software life cycle, implemented on the basis of Red Hat Linux with the help of tools such as Subversion, Git, Bugzilla, Jira, Jenkins, Artifactory, SonarQube, Maven, Eclipse IDE, RPM/YUM and many others. Principal software languages used in the Linux environment are C, C++, Java, Python and Unix shell. Software integration infrastructure consists of ~100 virtual machines running various versions of Red Hat Linux and CODAC systems.</p> <p>To define the ITER Control, Data Access and Communication (CODAC) methodology with respect to software integration; To secure the investment for software engineering related to the ITER CODAC; To define, maintain and develop the CODAC software integration infrastructure;</p> <p>To contribute to methodology for Instrumentation &amp; Control (I&amp;C) software deliverables testing, acceptance, integration and re-engineering where appropriate; To support the CODAC developers with regards to software testing, integration, packaging and release activities; To support I&amp;C developers with regards to the application of CODAC standards related to software quality and delivery.</p>
Main duties / Responsibilities	<p>Is responsible for the day-to-day functioning of the CODAC build and auxiliary servers; Performs functional configuration of the build infrastructure servers (Subversion, Bugzilla, Jenkins, Sonar, Artifactory, ); tests and installs new versions of those as necessary; Defines and improves guidelines and work instructions for software integration activities within the scope of the ITER CODAC; Maintains an overall view of all software developed in CODAC; advises on and promotes software industry best practices; proactively works on eliminating duplicated effort in development teams;</p> <p>Participates in the integration of delivered I&amp;C software into the central CODAC system, in particular for areas such as merging, splitting, repackaging and quality improvements of the projects; Supports CODAC developers in activities related to software building, packaging, integration and porting; Maintains internal documentation on continuous integration, testing, packaging and other development practices;</p>

	<p>Creates and maintains branches and tags in version control systems, notably for large software packages, such as the CODAC Core System;</p> <p>Controls and executes the release preparation procedures, including sanity checks of new releases;</p> <p>Guides and assists in both the integration and packaging of third party softwares and their evaluation against the established CODAC quality practices;</p> <p>Proactively checks and raises awareness about possible software conflicts or obsolescence issues;</p> <p>Assists in the execution of code reviews and various software verification and validation activities;</p> <p>Assists in receiving and verifying software deliverables(originating from both IO contracts or from in-kind procurement);</p> <p>May be requested to be part of any of the project/construction teams and to perform other duties;</p> <p>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;</p> <p>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.</p>
Measures of effectiveness	<p>Reports to the CODAC Section Leader;</p> <p>Works closely with the CODAC and I&amp;C Development Team.</p> <p>Delivers planned releases of CODAC software on time;</p> <p>Efficiently supports CODAC and I&amp;C development in topics related to software integration and quality;</p> <p>Maintains development services with a high degree of availability;</p> <p>Maintains and regularly presents overall software metrics;</p> <p>Efficiently supports the commissioning, operation and maintenance of the integrated ITER plant systems;</p> <p>Maintains up-to-date registers and documentation related to software engineering activities in scope of his/her work.</p> <p>SAP ID: 50002611</p>

## Applicant criteria

Level of study	Master or equivalent degree
Diploma	Computer Science or other relevant discipline
Level of experience	At least 8 years
Technical experience/knowledge	<p>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;</p> <p>At least 8 years of experience in building, testing, packaging and release activities in Linux environment;</p> <p>Experience of managing large code bases (a few millions lines of code);</p> <p>Experience with version control tools (e.g., Subversion, Git);</p> <p>Experience with software build and continuous integration tools (e.g., gmake/cmake, Maven, Jenkins, Artifactory);</p> <p>Experience with Red Hat-style software packaging (RPM / YUM / DNF);</p> <p>Good command of Python and Unix shell;</p> <p>Basic knowledge of C, C++, Java, JavaScript and SQL;</p> <p>Knowledge of unit testing frameworks (JUnit, gtest, ...) would be an advantage;</p> <p>Experience with static analysis tools (e.g., lint, SonarQube or commercial tools) would be an advantage;</p> <p>Knowledge of Red Hat Satellite Server would be an advantage;</p>
General skills	<p>Excellent organizational skills and the ability to set priorities and meet deadlines;</p> <p>Collaborate: Ability to dialogue with a wide variety of contributors and stakeholders;</p> <p>Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;</p> <p>Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;</p> <p>Manage Complexity: Ability to gather multiple and diverse sources of information to define problems accurately before moving to proposals;</p>

	Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.
Languages	English (Fluent)
Others	Excellent computer and IT skills (i.e. MS Office); Experience with MS SharePoint and/or Atlassian tools is considered an advantage.