

openETCS Competence Matrix Record Template

The scale for the skill or knowledge level ranges from 0 (no competence) to 3 (advanced level of competence) and includes the years of experience in this competence. E.g. "(3,10)" representing an advanced level of competence with 10 years of experience in this field.

Personnel		Company					
Areas of expertise			Participant_1	Participant_2		Participant_n	
Application of CENELEC Standards							
EN 50126							
EN 50129							
EN 50128							
...							
Application of TSI-CCS Standards							
TSI-CCS							
Subset-026							
Subset-027							
Other Subsets of the TSI-CCS							
Application of railway regulations							
French national regulations							
German national regulations							
Netherlands national regulations							
Other European national regulations							
Experience in Application Domain ERTMS/ETCS							
Train Development							
Track Development							

Personnel	Company					
Areas of expertise		Participant_1	Participant_2		Participant_n	
Control and Signalling System Development						
Operations Experience in Application Domain safety attributes of ERTMS/ETCS Hazard and risk analysis of safety-related railway systems FTA						
FMEA						
FMECA						
HAZOP						
...						
openETCS Infrastructure openETCS Charta						
openETCS Development Process						
Review Techniques for Documents						
Review Techniques for Models						
Tool: GitHub Functions						
Requirements engineering						
System requirement techniques						
Software requirement techniques						
Formal methods						
Structured methodology						
Requirements Modelling						
Review Techniques for Scade Projects						
Tool: Doors						
Tool: ProR						

Personnel		Company					
Areas of expertise			Participant_1	Participant_2		Participant_n	
Tool: Papyrus							
Tool: openETCS Tool							
Development of safety-related systems							
System architecture techniques							
System design approach: V - Model Development							
System design approach: Agile Development							
System safety design principles							
Model based system design: SysML							
Model based system design: Event-B							
Model based system design: Petri nets							
Model based system design: SCADE							
Model based system design: GSN (Goal Structure Notation)							
Development of software for safety-related systems							
Software Configuration Management							
Software architecture techniques							
Open Source Software Development principles							
Software design techniques: V-Model Software Development							
Software design techniques: Agile Software Development							
Software design techniques: Compiler							
Software design techniques: Data Converter							
Model based interface specification: XML							

Personnel		Company					
Areas of expertise			Participant_1	Participant_2		Participant_n	
Model based interface specification: XML							
Model based software design: UML							
Model based software design: SysML							
Model based software design: VDM							
Model based software design: z-, B-Method							
Model based software design: System C							
Model based software design: Java (Eclipse)							
Model based software design: SCADE							
Model based metamodel design: ECORE (EMF)							
Model based database design: ERD							
Model based software design: other formal methods							
Language ADA and coding standards							
Language C, C+ and coding standards							
Distributed revision control: GIT							
Tool: Papyrus							
Testing, verification and validation of safety-related systems							
ERTMS/ETCS Test Specifications							
Safety related system test execution techniques (verification & validation)							
Safety related system test evaluation techniques (verification & validation)							
Subset-076 testing							

Personnel		Company					
Areas of expertise			Participant_1	Participant_2		Participant_n	
Logic checking of requirements							
Method: Conformance analysis							
Method: Coverage analysis							
Safety related system test evaluation techniques (verification & validation)							
Software in the Loop test techniques							
Model based system test techniques							
Formal verification techniques							
Formal validation techniques							
Testing, verification and validation of software for safety-critical systems							
Functional Software verification and validation techniques							
Software performance verification and validation techniques							
Safety related software verification and validation techniques							
Model based software test techniques							
Interface testing							
Implementation testing							
Assessment of safety-related railway systems and software							
ERTMS/ETCS system context assessment							
Safety related system assessment techniques							
Safety related software assessment techniques							
Process assessment							
Tool assessment							

Personnel		Company				
Areas of expertise			Participant_1	Participant_2		Participant_n
Acceptance/licence from recognised safety authority						