Functional Safety Manager

The Functional Safety Manager leads and coordinates functional safety activities in automotive projects, ensuring compliance with IEC 61508, ISO 26262, and related standards. This role extends the competence set of the Functional Safety Engineer, with added responsibilities for managing safety projects, supervising organisational processes, and ensuring that safety is systematically integrated into the product lifecycle.

Main activities include defining safety concepts, planning safety activities, preparing safety plans and cases, overseeing Development Interface Agreements (DIA), and coordinating confirmation measures. The Manager evaluates functional safety competences within the team, ensures reliability engineering principles are applied, and supervises tool qualification processes.

Responsibilities cover both technical and organisational dimensions: hazard and risk analysis, verification and validation planning, compliance mapping, and legal aspects of liability. The Functional Safety Manager collaborates with engineering, production, and R&D departments to ensure consistent application of safety culture, alignment with standards, and traceability of safety evidence.

ESCO Mapping

https://esco.ec.europa.eu/select-language?destination=/node/1

ID	NAME	Concept URI
2149.3	Autonomous driving specialist	http://data.europa.eu/esco/occupation/e8fca903-6590-48a8-8902-094bb41ee90c
2151.4	Battery system engineer	http://data.europa.eu/esco/occupation/7648d5d9-cfab-4981-ba82-b66a9a41d37e

Context

EQF Level	7
Departments	Production and Maintenance

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

	R&D (Research and Development)

Sector Specific

ID	Name	Type	Description	Level	ESCO
C29 1	Engineering and V&V methods	Knowledge	Validation and verification methods required by safety standards. ▪ Explain ISO 26262 and IEC 61508 method tables ▪ Describe V&V approaches (fault injection, diagnostic coverage, equivalence class) ▪ Relate ASIL to V&V planning ▪ Support audits of V&V evidence	2	
C29 2	Design safety tests	Skill	Design tests for safety-related components and systems. ▪ Define fault injection test cases ▪ Plan diagnostic coverage tests ▪ Apply load and stress scenarios ▪ Document safety test outcomes	2	
C29 3	Ensure compliance to functional safety norms	Skill	Develop compliance maps using qualified tools and methods. ▪ Identify relevant standards ▪ Map processes to ISO 26262 ▪ Verify tool qualification ▪ Provide evidence of compliance	2	
C29 4	System hazard analysis	Knowledge	Hazard and risk analysis principles in IEC 61508, ISO 26262, ISO 13849. ▪ Define hazard, harm, exposure, severity, controllability ▪ Perform hazard analysis and risk assessment ▪ Support safety goal derivation ▪ Document results in HARA reports	2	
C29 5	Identify hazards in safety-related systems	Skill	Conduct hazard identification and analysis workshops. ▪ Moderate workshops with stakeholders ▪ Record hazardous events ▪ Classify risks by ASIL ▪ Document outcomes systematically	2	

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

ID	Name	Type	Description	Level	ESCO
C296	Establish safety concepts	Skill	Derive functional safety requirements and develop technical safety concepts. ▪ Define safety-critical signal paths ▪ Model system state machines ▪ Allocate timing and subsystems ▪ Translate hazards into requirements	2	
C297	Integrate safety in hardware design	Skill	Apply fault tolerance and hardware safety design methods. ▪ Describe FIT, MTTF, failure rate concepts ▪ Select modelling strategies for HW fault tolerance ▪ Implement redundancy strategies ▪ Review hardware safety designs	1	
C298	Apply and evaluate hardware safety metrics	Skill	Calculate and evaluate hardware safety metrics. ▪ Calculate SPFM/LFM metrics ▪ Analyse random hardware failures ▪ Document safety architecture metrics ▪ Support compliance reviews	1	
C299	Verify safety-relevant hardware	Skill	Plan and conduct hardware tests based on safety designs. ▪ Define HW test plans ▪ Execute diagnostic/fault injection tests ▪ Analyse HW test results ▪ Report verification outcomes	1	
C300	Design and implement safety-critical software	Skill	Apply design principles for safety-critical software. ▪ Implement Level 2–3 diagnostics (E-Gas model) ▪ Specify diagnosis matrices ▪ Apply plausibility checks, voting, diversity ▪ Ensure diagnostic coverage	1	
C301	Verify safety-relevant software	Skill	Select and execute software verification tests. ▪ Define unit and integration tests ▪ Perform safety SW tests ▪ Validate diagnostic coverage ▪ Provide verification evidence	1	

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

ID	Name	Type	Description	Level	ESCO
C302	Safety in production, operation and maintenance	Knowledge	Incorporate safety analysis into production and maintenance. ▪ Explain ASIL implications in production ▪ Map qualification methods to processes ▪ Integrate safety in assembly and operation ▪ Document compliance	3	
C303	Reliability engineering	Knowledge	Reliability models in safety-critical design. ▪ Explain FIT rate modelling ▪ Apply models to predict failures ▪ Use reliability data in design ▪ Support reliability reviews	2	
C304	Apply reliability engineering principles	Skill	Use reliability data to support design decisions. ▪ Collect reliability measurements ▪ Apply to component selection ▪ Document analysis results ▪ Recommend improvements	2	

Other Competences

ID	Name	Type	Description	Level	ESCO
C329	Legal aspects and liability	Knowledge	Product liability and responsibility in safety-related development. ▪ Explain EU liability directives ▪ Describe engineer's personal responsibility ▪ Identify applicable national standards ▪ Support training in liability awareness	3	
C330	Assess legal compliance in product development	Skill	Assess residual risk and legal compliance before product release. ▪ Review compliance reports ▪ Validate residual risks ▪ Support product release decisions ▪ Document legal compliance	3	
C333	Safety management on organisational level	Knowledge	Organisational safety culture and responsibilities. ▪ Explain importance of safety culture ▪ Identify organisational safety structures ▪ Define manager's role in safety systems	3	

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

ID	Name	Type	Description	Level	ESCO
			▪ Promote systematic safety awareness		
C334	Evaluate functional safety competences	Skill	Define and evaluate functional safety competences in project teams. ▪ Identify competence gaps ▪ Plan training for safety staff ▪ Monitor competence development ▪ Document competence evaluations	3	
C335	Prepare a safety case	Skill	Develop and structure a safety case to demonstrate compliance. ▪ Identify safety case elements ▪ Define evidence collection requirements ▪ Structure safety arguments ▪ Document safety case for audits	3	
C336	Prepare a safety plan	Skill	Identify, plan and monitor all activities required for functional safety. ▪ Define safety tasks and milestones ▪ Integrate with project plans (change/config mgmt, V&V) ▪ Monitor dependencies ▪ Update safety plan during lifecycle	3	
C337	Prepare a Development Interface Agreement (DIA)	Skill	Establish and manage Development Interface Agreements. ▪ Draft DIA with suppliers ▪ Define responsibilities and deliverables ▪ Monitor execution ▪ Ensure traceability in project	3	
C331	Perform confirmation measures	Knowledge	Independent confirmation measures as required by ASIL. ▪ Describe confirmation review methods ▪ Support functional safety assessments ▪ Document independent reviews ▪ Report results to management	3	
C332	Perform tool qualification	Skill	Evaluate and qualify tools used in safety-related development. ▪ Determine tool confidence levels (TCL) ▪ Select qualification methods ▪ Document qualification evidence ▪ Ensure traceability of tool usage	3	

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.