albatts

Alliance for Batteries Technology, Training and Skills

2019-2023

Processes Engineer

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Processes Engineer in Battery Industry

A battery process engineer is responsible for designing, developing, and optimizing the manufacturing processes for batteries. They work with a team of engineers and scientists to create efficient and cost-effective manufacturing methods for electric vehicles, consumer electronics, and other applications. They are responsible for the development, implementation and optimization of the manufacturing process for battery cells, packs, and systems.

ESCO Occupations - ESCO - Occupations - European Commission (europa.eu)

ID	NAME	Concept URI
2141.9	process engineer	http://data.europa.eu/esco/occupation/b5eaf231-77ad-4a86-8e54-15cc4398aad2

Context

Minimum EQF	6/7
Value Chain	Raw Materials and Processing Cell and Components Manufacturing Modules and Packs Battery Integration Operation Second Life Recycling
Departments	Production and Maintenance Logistics Quality Purchasing HR Finance Sales RnD Construction Intellectual/Legal Recycling Environment

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	IT/Digitalisation
Specialisations	Other job roles that are more specialised but based on this Cell Assembly Process Engineer Process & Test Engineer - Battery Technology Battery Cell Conditioning Process Development Expert Process Engineer Process Engineer, Battery Discharge - Battery Recycling Process Engineer, Battery Dismantling Process Quality Engineer Quality Process Engineer

Cross-sectoral Specific Competence

Name	Type (S/K)	Description/Context	Level	ESCO
Manufacturing Engineering	K	- Conceptualize and develop new manufacturing methods and equipment to meet the needs of both internal and external customers. - Design and implement testing methods, establishing standards, and confirming manufacturing methods - Provide guidance and instruction to assembly and quality staff for all R&D cell assembly activities - Keep equipment operational by coordinating maintenance and repair services - Research, commission, and validate new equipment or modify existing equipment to prototype new battery cell formats - Perform prototype builds for process and process equipment	Expert	manufacturing and processing
Process Improvement	S	- Sustain and improve process yield - Lead the improvement projects - Role entails driving large, innovative and challenging improvement projects - Use data and reports to develop and implement continuous improvement plan for capability, cost, and efficiency of existing techniques and equipment. - Analysis of errors that occur and development of suggestions for fault rectification and optimization measures - Identify process improvement areas - Define critical process parameters for optimisation	Expert	identify process improvement

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Product Testing	S	- Design and implement testing methods, establishing standards, and confirming manufacturing methods - test set-up and test execution - Localization and establishing contacts with potential service providers for testing battery cells - Assist in adjusting / updating machine settings and parameters for various product lines - testing of ongoing projects - support battery production activities of pilot and R&D cell assembly lines by supervising, maintaining, and improving manufacturing equipment and methods - Evaluate process data to identify potential improvements and risks	Expert	perform product testing
Analysis Methods	K	- Create and maintain PFMEAs and control plans - Prepare Failure Mode Effect Analysis (FMEA) - Analysis of process and testing of ongoing projects - Analysis of errors that occur and development of suggestions for fault rectification and optimization measures	Expert	analysis methods

Sector Specific Competence

Name	Type (S/K)	Description/Context	Level	ESCO
Lithium-ion Chemistry	K	- Knowledge of Li-ion technology or battery technologies in general - Knowledge of each step of battery manufacturing	Practitioner	battery chemistry

Soft Competence

Name	Type (S/K)	Description/Context	Level	ESCO
Teamwork	K	- work in team within and across different departments - provide engineering support to other teams	Practitioner	Teamwork
Adaptation	S	- adapt to the work environment, issues, and changes in organisation and on the market	Practitioner	Adapt to change
Communication	K	- Work and communicate with external stakeholders - Communicate with team members and across different department teams	Practitioner	Communication
Problem Solving/	S	- Problem solving skills	Practitioner	Problem solving & troubleshoot

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Troubleshooting				

General Transversal Competence

Name	Type (S/K)	Description/Context	Level	ESCO
Documentation	S	- Use data and reports to develop and implement continuous improvement plan for capability, cost, and efficiency of existing techniques and equipment - facilitate both quality trainings and new product training with necessary training materials	Practitioner	use technical documentation; observe documents
Customers/Stakeholders	S	- Attend non-conformances meetings with customer and translate requirements into systems and procedures for LeM	Practitioner	communicate with customers

Academic Competence (can be taken from University programme)

Name	Type (S/K)	Description/Context	Level	ESCO
Electrochemistry	K	- Acquisition and project processing in the electrochemical and mechanical process technology of battery cell manufacturing	Expert	electrochemistry
Mechanical Engineering	K	- Assist in adjusting / updating machine settings and parameters for various product lines - Acquisition and project processing in the electrochemical and mechanical process technology of battery cell manufacturing - Analysis of errors that occur and development of suggestions for fault rectification and optimization measures - focused on Mechanical & Electrical Design - Conceptualize and develop new manufacturing methods and equipment	Expert	mechanical engineering
Electrical Engineering	K	- Development of new ideas on measurement technology and methodology for electrical, geometric and thermal test methods - establishing standards, and confirming manufacturing methods	Expert	electrical engineering

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