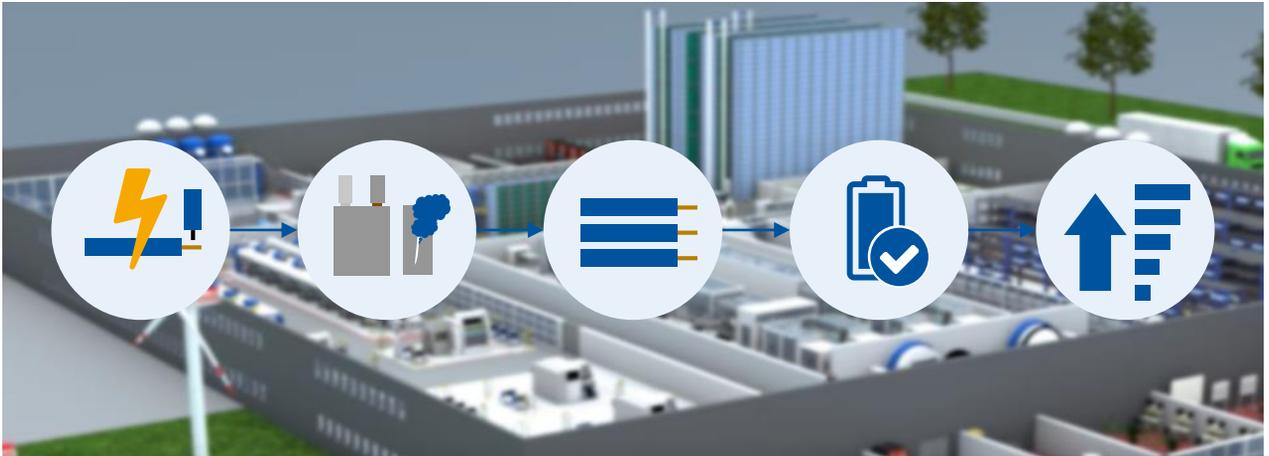


# Master thesis / Bachelor thesis

## *Capacity planning in cell finalization*



Source: PEM

### Initial situation:

More and more battery factories are announced in Europe and start planning their production lines. The lithium-ion battery cell manufacturing process is divided into three manufacturing processes: Electrode manufacturing, cell assembly and cell finalization. Cell finalization is one of the most challenging processes. Cell finalization includes soaking, forming, aging and End-of-line testing (the process varies depending on the cell format). Typically, the processes of formation and aging take up to several days and weeks. In addition, particularly high capital commitment costs are observed. This means not only that improvements through optimized forming protocols are needed to speed up the process, but also that the process must be carefully planned and designed in terms of capacity.

### Your task:

In this thesis, the overarching task is to design a model for estimating capacity requirements in cell finalization. A rough estimation of the capacity requirement is no longer sufficient given the many design options and the associated costs. For this purpose, detailed research on the state of the art is to be carried out as a first step. Based on the research, a model is to be built, with the help of which various capacity scenarios and influencing factors can be revealed. The model is intended to deepen understanding of the process and enable improved process design. Finally, the model will be validated using a practical example.

### Your prerequisites:

- Degree in (industrial) engineering (or comparable)
- Ability to structure and develop content independently
- Very high motivation
- Commitment and willingness to learn

### We offer:

- Professional and intensive support
- Flexibility in the formulation of topics
- Insights into future technologies of battery production
- Independent execution with meetings via MS Teams

### Interested?

Please send a current transcript of grades as well as your resume and references to the e-mail address below.

### Your contact person at PEM:

Jan Felix Plumeyer, M.Sc.  
[j.plumeyer@pem.rwth-aachen.de](mailto:j.plumeyer@pem.rwth-aachen.de)