


Please fill in the following form as completely as possible

	Fontys University of Applied Sciences				
Assignment description	Approval of the assignment				
	Date :				
	Coordinator :				
Signature :					
<u>Intern</u>					
Name : Ahmed Abdelrahim Institute : Fontys University of applied science Education : Electrical Engineering Theme / Profile : Student number : 4320972 E-mail : 4698949@student.fontys.nl Phone / Mobile : +31 06633431989 Together with student :					
<u>Internship project</u>					
Title: Temperature Control Unit for 50 and 150kV current transformers					
<u>Planning</u>					
Start date : 12/02/2024 End date : 31/06/2024					
<u>Client/Company</u>					
<table> <tr> <td data-bbox="225 1507 443 1536"><u>Company details</u></td> <td data-bbox="534 1507 932 1659"> Name : Qirion B.V. Address : Dijkgraaf 4, Duiven Postal code : 6920 AB Phone : website : https://qirion.nl/ </td> </tr> <tr> <td data-bbox="225 1691 496 1720"><u>Company supervisor</u></td> <td data-bbox="534 1691 1013 1783"> Name : Erik Peerdeman E-mail : erik.peerdeman@qirion.nl Phone : +31 06 52884548 </td> </tr> </table>		<u>Company details</u>	Name : Qirion B.V. Address : Dijkgraaf 4, Duiven Postal code : 6920 AB Phone : website : https://qirion.nl/	<u>Company supervisor</u>	Name : Erik Peerdeman E-mail : erik.peerdeman@qirion.nl Phone : +31 06 52884548
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<table> <tr> <td data-bbox="225 1845 448 1906"><u>Human Resource Department</u></td> <td data-bbox="534 1845 1102 1935"> Name : Marieke Keurntjes E-mail : Marieke.keurntjes@alliander.com Phone : +31634620064 </td> </tr> </table>		<u>Human Resource Department</u>	Name : Marieke Keurntjes E-mail : Marieke.keurntjes@alliander.com Phone : +31634620064		
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Reason for the project (Context)

Acquire mandatory work experience worth 30ECs for bachelor's 3rd year semester,
To be able to achieve hands on knowledge and skills of a company and be able to apply knowledge in school in the real-world problems.

Assignment and Objective

The main subject of the assignment is to design a Temperature control unit for 50-150kV current transformers which will be used for research purposes, this will be used to heat current transformers up, which allows measurements to be performed at different temperatures to assess the performance of high voltage insulation in different states.

Research points:

- System analysis of the transformer in different temperatures:
Here I will investigate the behavior of the transformer at various temperatures to understand how high voltage insulation performs under different conditions.
- Include a resistance measurement.
Here I will implement a method for measuring resistance, which is crucial for assessing the transformers components.
- leakage current measurement to the unit as a test to see if this can be done in the field as security measure.
Here I will incorporate a way to measure leakage current, which serves as a security measure and can indicate potential issues with the insulation in the transformer.
- Hardware as well as software development.
Enhance the use of GUI and new methods which can make the research done in a more Effective and simple way, Using temperature sensors, control algorithms and of course user interface (GUI).

End products

The expected end products include a fully functional and efficient Temperature Control Unit.

Documentations:

- Plan of approach
- System design
- System design diagram
- Final report

Consideration will be made for safety, accuracy, and reliability throughout the design process. Additionally, compatibility with field use and ease of the operation should be taken into account.

Additional agreements and comments

Further research on current transformers during the development of this product. This is mainly based around creating a safe working area for personnel when the condition of components is uncertain.

Additional agreements were also made where I will also be taking part with the maintenance team and visiting many grids around the Netherlands, which will help me gain more knowledge of the grids where I can of course test the TCU.