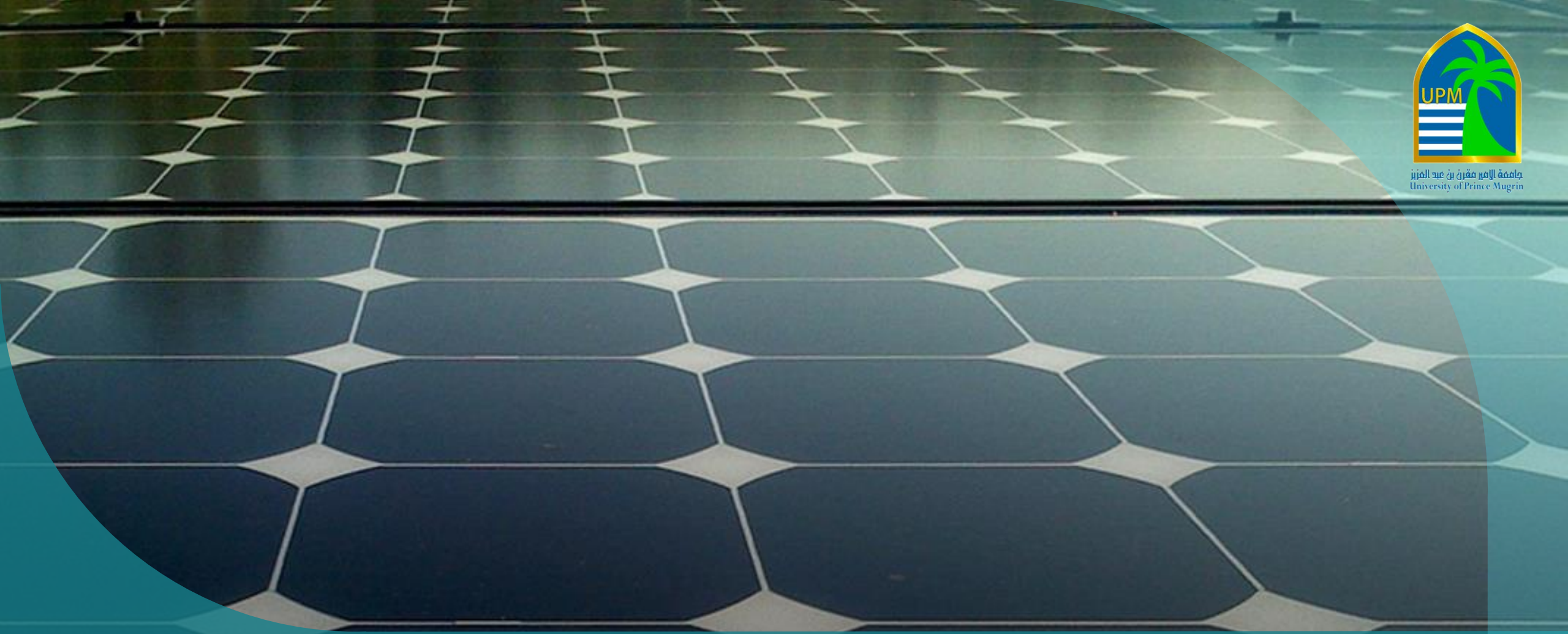

جامعة الأمير مقرن بن عبد العزيز
University of Prince Mugrin

Electrical Engineering Department
Fall 2023-2024
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Solar Power Generation For Home

EE 404 – Solar Cells & PV System

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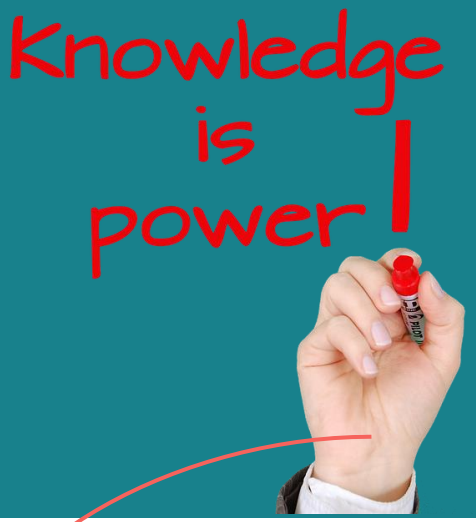
The Content

- Introduction
  - Project Inputs and Outputs
    - Circuit Description & Analysis
      - Relevance to Course Curriculum
        - Conclusion

Introduction



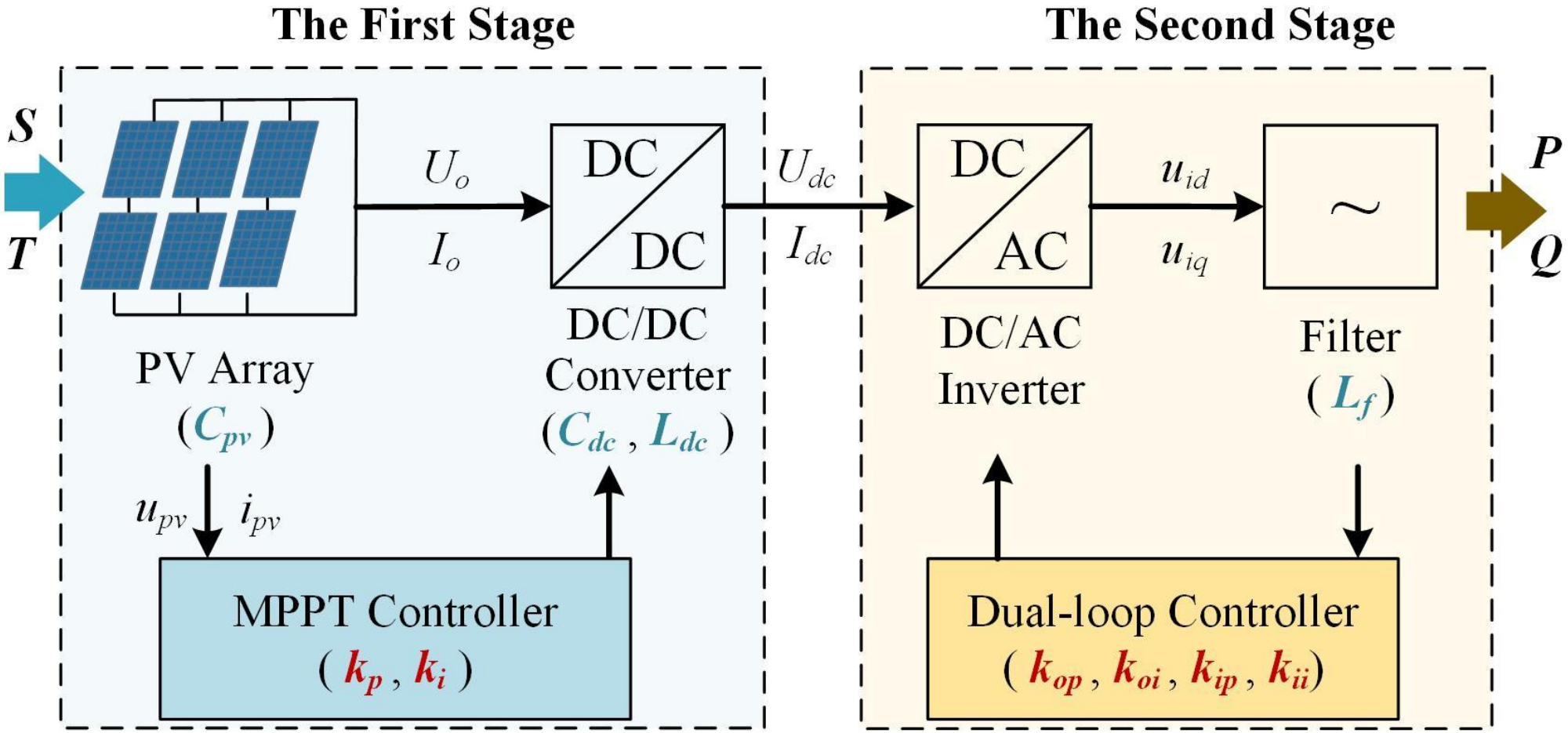
Project Objectives:

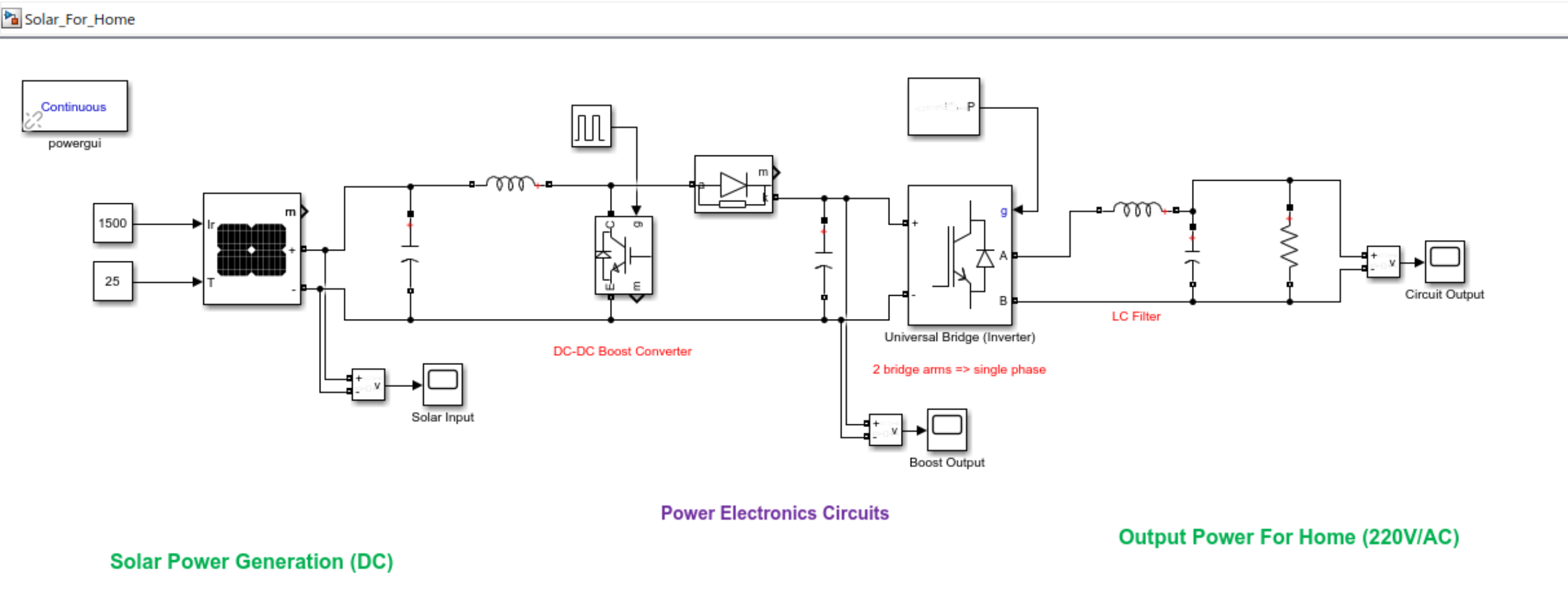
- Implementing Acquired Knowledge
- Producing a Useful Application

Main Goal:

Aim to generate efficient and useful electrical power through the utilization of photovoltaic (PV) solar cells.

Project Inputs & Outputs

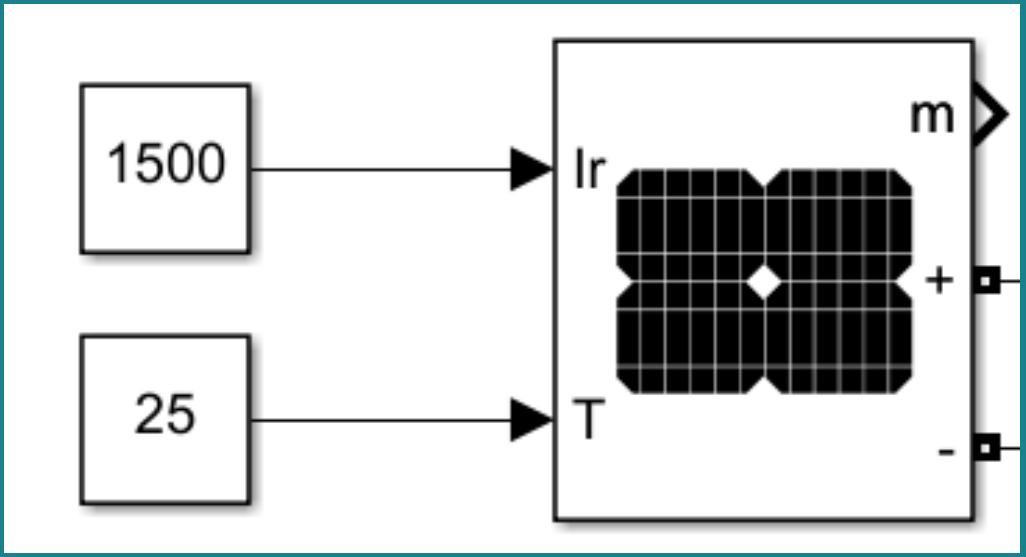




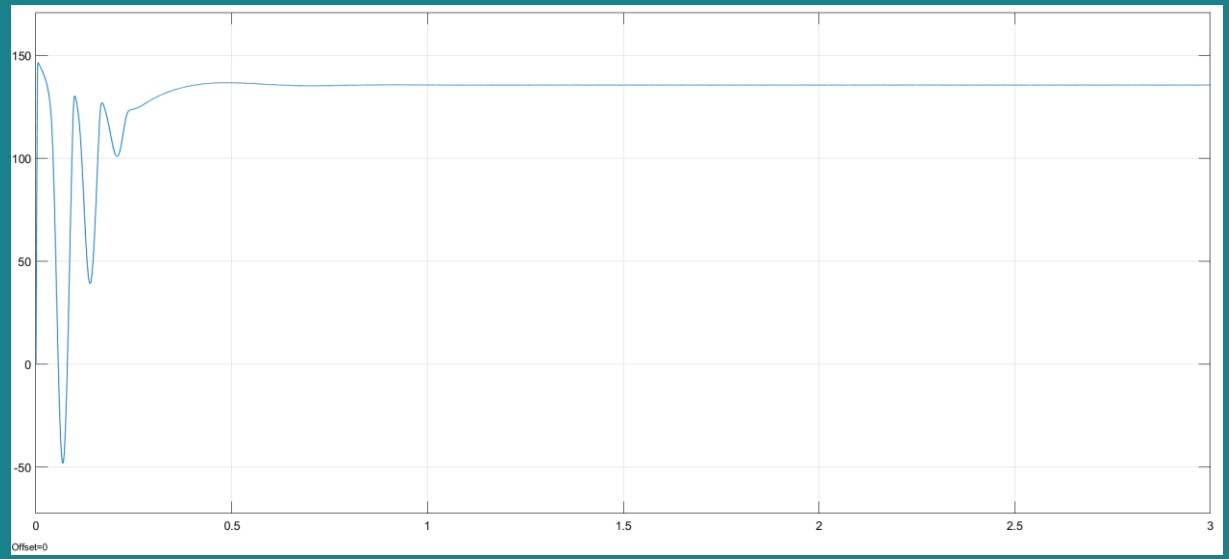
Circuit Description & Analysis

Solar Power Generation

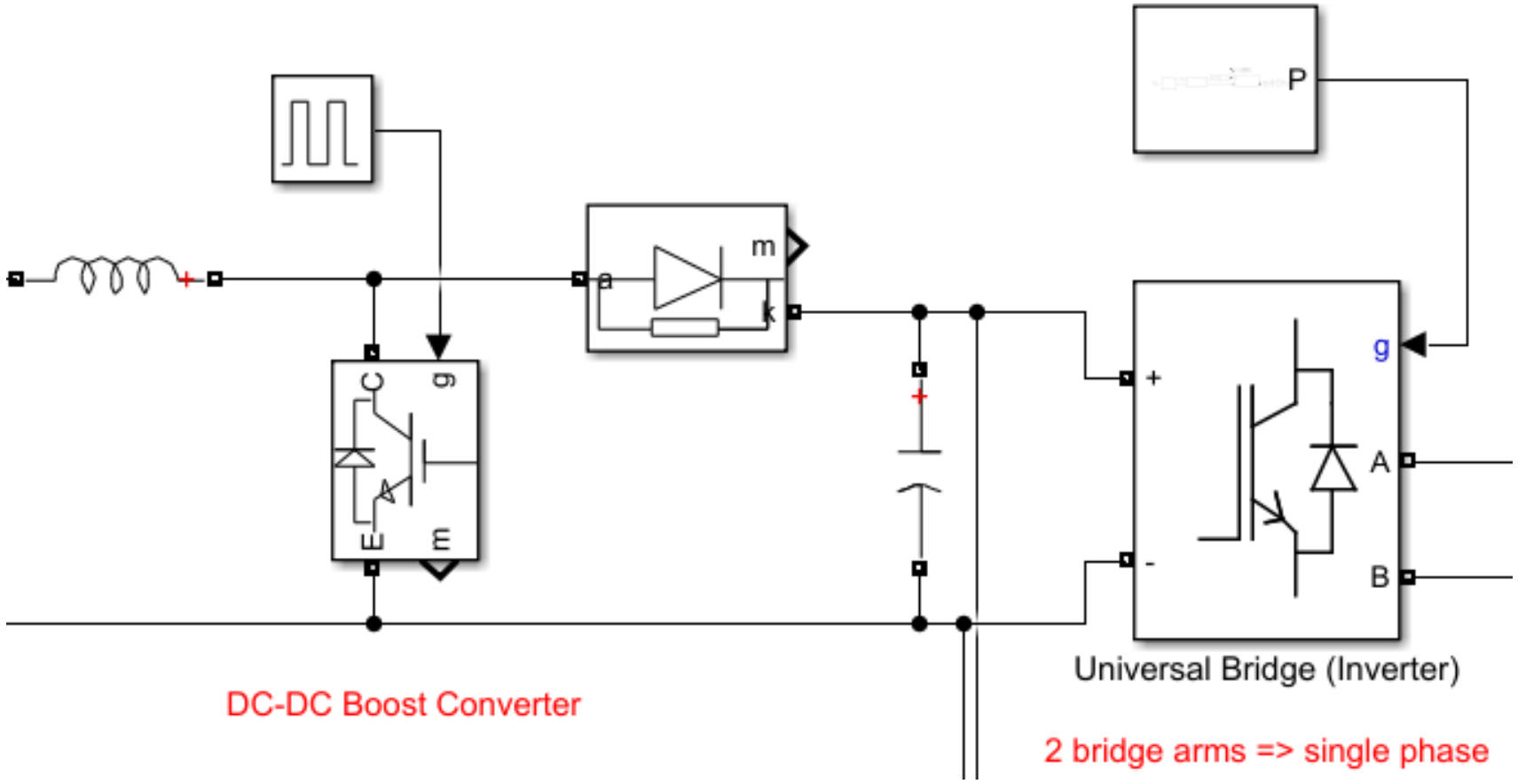
Input



Waveform

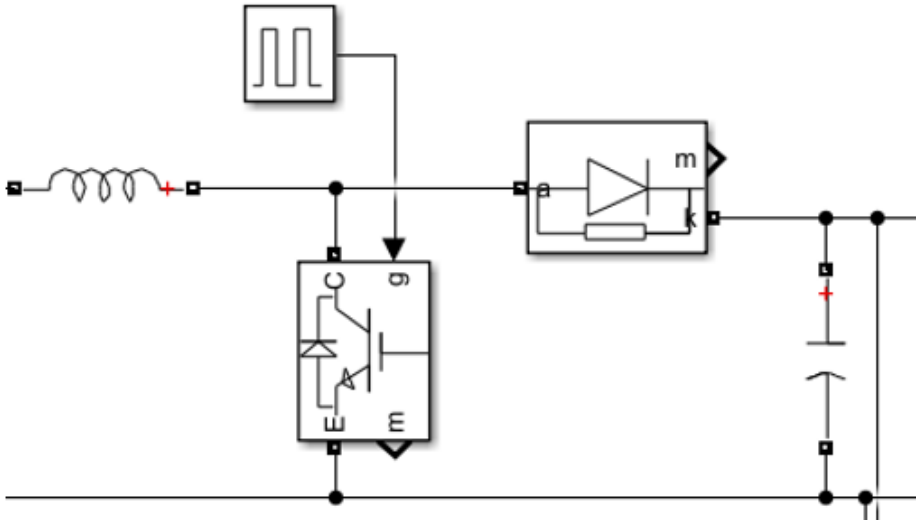


Power Electronics Circuit

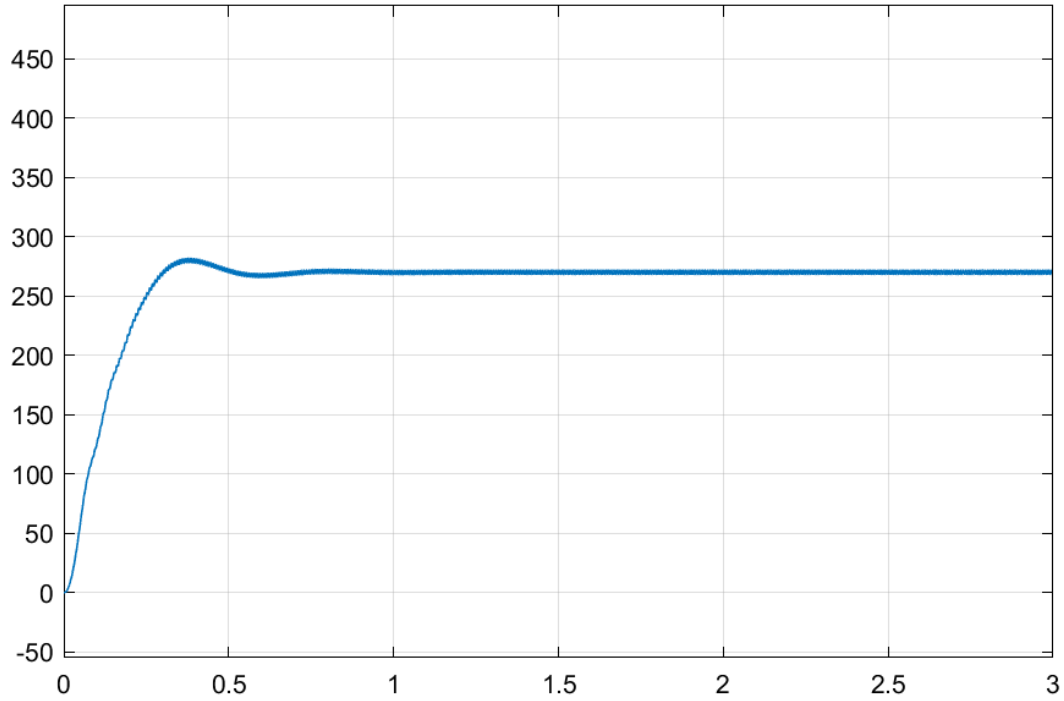


Power Electronics Circuit (DC => DC Boost Converter)

DC-DC Boost Converter

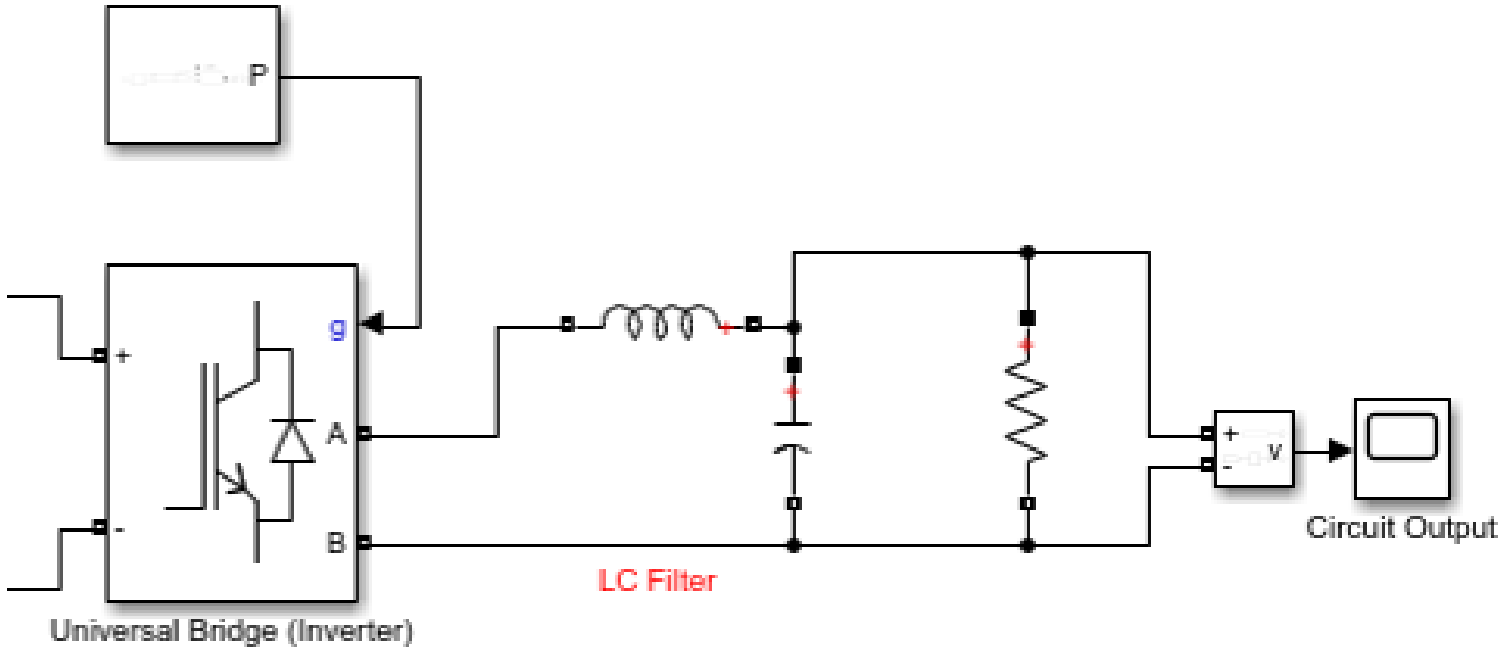


Waveform



Power Electronics Circuit (DC => AC Inverter)

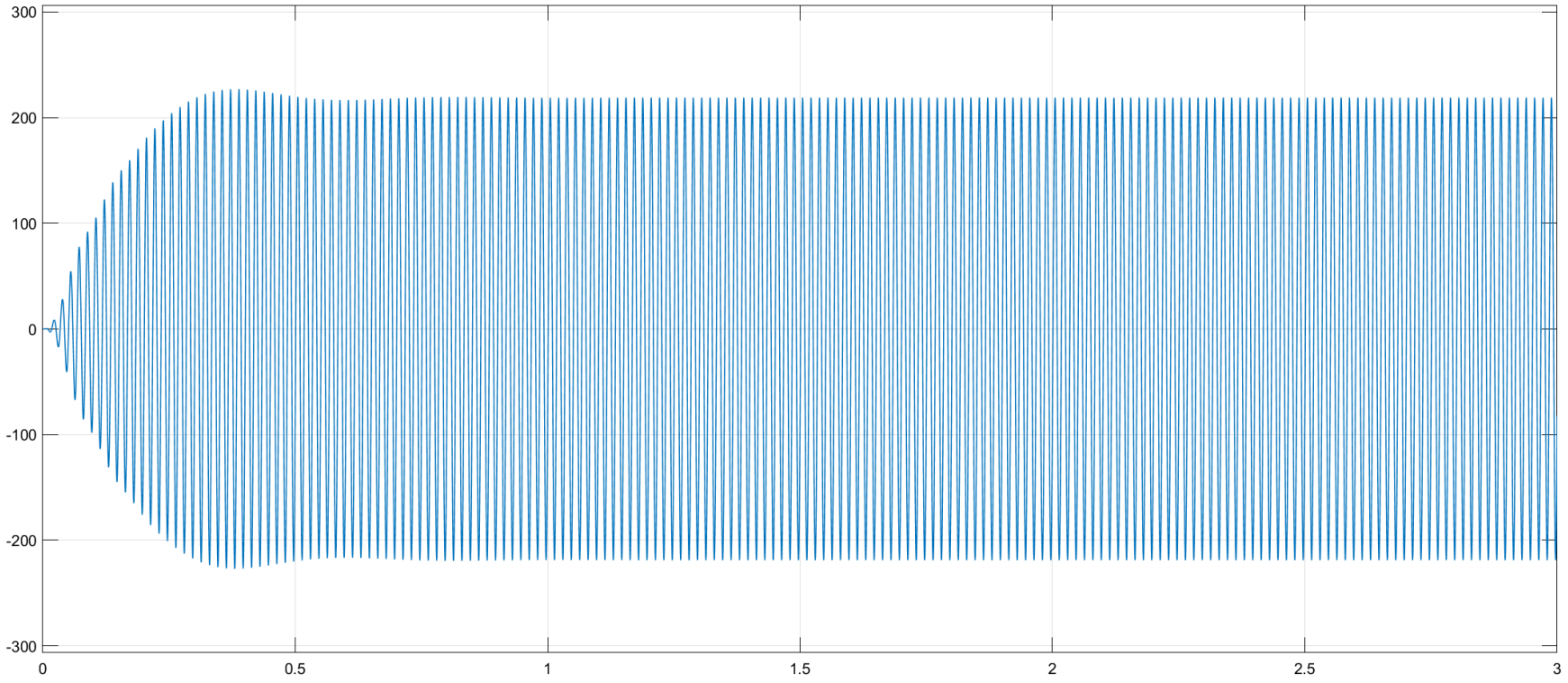
Output



2 bridge arms => single phase

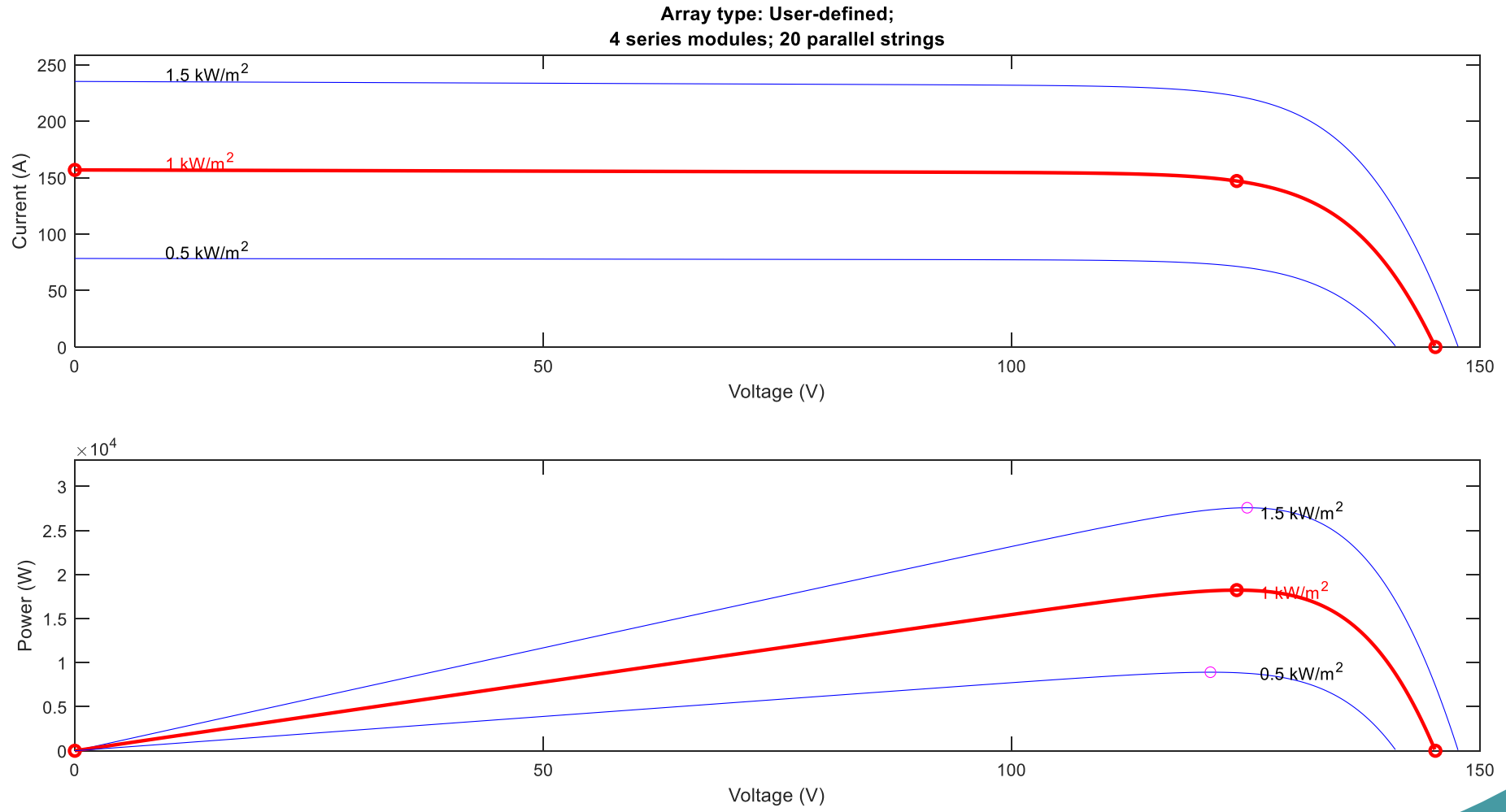
Output Power For Home

Waveform



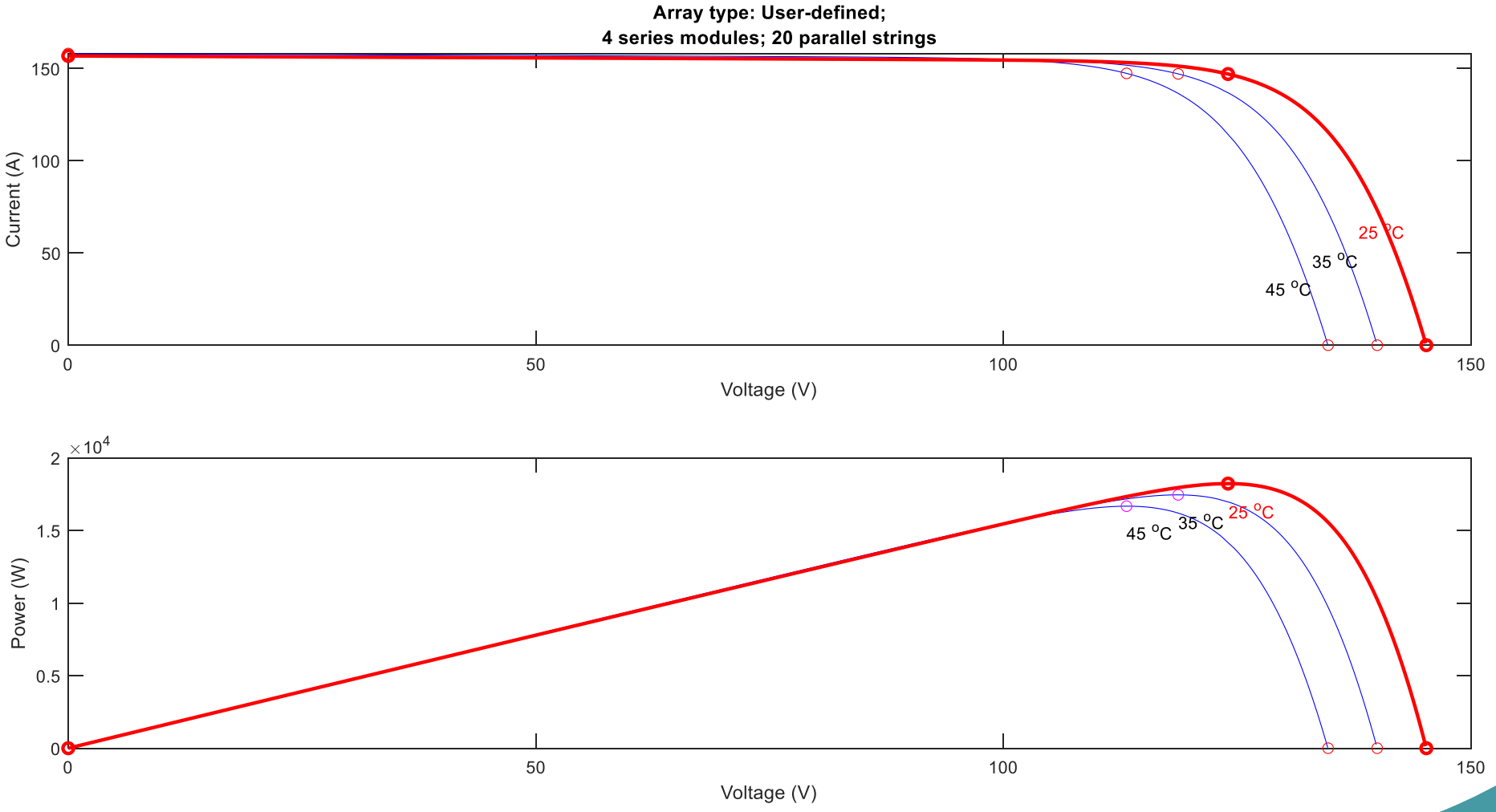
Relevance to Course Curriculum

P-V and I-V Curve At (25 C^o)



Relevance to Course Curriculum

P-V and I-V Curve At (1000 W/m^2)



Conclusion

Task Achieved

Knowledge Applied

Thank You For Your Attention

Any Questions?!