

**EE463 - STATIC POWER CONVERSION**

**Hardware Project: AC to DC Motor Drive**

**Members:**

**Hakan Saraç**

**Yusuf Yılmaz**

**Ceren Yalçın**

**Table of Content**

Design decisions

* Topology Selection: Discuss the advantages and disadvantages of each topology, and decide on a topology.

Computer simulations

* Computer Simulations: According the your topology selection, you are going to run computer simulations, to prove the performance characteristics of your drive. It is best to simulate as detailed as possible to catch possible hardware problems (for example, how to generate control/gate signals).

Component selection

* Component Selection: According to your analytical calculations and computer simulations decide on which components you are going to use. Not only choose the power components, but also decide on the control, and axillary components.

Test Results

* It should contain your results with the motor running (data can be collected on the demo day, but preferably earlier). The report can contain any other useful tests (i.e. functionality of the switches, tests with R load etc.)

**Design decisions**

**Topology Selection**

We discuss the advantages and disadvantages of each three topology to make a controlled rectifier that will be used to drive an adjustable DC Motor with 3 Phase, or 1 Phase AC Grid.

|  |  |  |
| --- | --- | --- |
| Topology | Advantages | Disadvantages |
| 3-Phase Thyristor Rectifier |  |  |
| 1-Phase Thyristor Rectifier |  |  |
| Diode Rectifier + Buck Converter |  |  |

**Computer simulations**

**Component selection**

**Test Results**