

ECE 332 Spring 2016
Lab 16d: Band-Pass and Band-Reject Filter Design

Technical: 80% of lab score (**Note: 10% will be deducted if you do not meet specs**)

Prelab (20 pts)

- ☐ Score from prelab

Objective (2 pts)

- ☐ Described the purpose or goal of the design

Specifications and Limitations (3 pts)

- ☐ Defined exactly what this design is supposed to do
- ☐ Defined circuit specifications: passband gains, cutoff frequencies, bandwidths, Q (if required), etc.
- ☐ Discussed limiting factors (source resistance, loading, parts, etc).

General Approach (5 pts)

- ☐ Determined a method using theory to design the circuit
- ☐ Determined a method to build, test, and compare lab performance with required specifications

Design (10 pts)

- ☐ Derived correct transfer function for BPF and BRF
- ☐ Included Matlab magnitude Bode plots showing transfer functions meet specifications
- ☐ Included relevant equations relating circuit parameters to specification parameters
- ☐ Included Multisim results showing realized response; verified specifications were met
- ☐ Provided a design using parts available in the lab
- ☐ Provided graph containing both Multisim and Matlab results
- ☐ Included initial error calculations

Implementation (5 pts)

- ☐ Recorded the physical implementation of the design in hardware. Included schematic of constructed circuit
- ☐ Included construction/building issues, testing problems, design changes, and anything else between building and final completion

Analysis and Testing (25 pts)

- ☐ Included sample O-Scope plots used to determine the gain at a particular frequency (do not need for all measured frequencies; one is sufficient)
- ☐ Included a table showing the gain at various frequencies
- ☐ Included a plot showing built circuit data points compared to Matlab and Multisim predictions
- ☐ Included a table comparing desired specifications, designed simulation (Multisim), and built data
- ☐ Addressed all significant errors
- ☐ Discussed any key difficulties

Conclusions (10 pts)

- ☐ Summarize the lab restating key items from Analysis and Testing, lessons learned, etc.

Presentation: 20% of lab score

- ☐ Peer review (5 pts) Name of Reviewer: _____
- ☐ Written communications (5 pts)
- ☐ Presentation and format (10 pts)

Name _____

Grade= _____ / 100 = _____