Başkent University
Department of Electrical and Electronics Engineering
EEM 311 Electronics II
Experiment 8

EXPERIMENT 8

ACTIVE FILTERS

Objectives:

The purpose of this experiment is to give you experience in designing active filters.

IMPORTANT!!! Having all knowledge about active filters is a must! You must also declare the equipment list for your design to the teaching assistant at least one hour before the laboratory experiment. Course followers (1-student workload) have to design the low pass and high pass active filters whose specifications described in preliminary part, and in laboratory, they will be divided in groups 2 by 2 students to test their designs (2-student workload) of active filters then connect cascaded them to make a bandpass active filter (4-student workload) and test it desribed as specs of first two design parts.

Discussion:

You must read all the notes and important points in design of active filters given by your instructor and the chapters which will be necessary in the course book.

Preliminary Work:

1. **Design a 40 dB/decade low pass active filter for a cut-off frequency of 3 KHz. You must choose convenient values for resistors and capacitors and also they can be found in our laboratory technician service.(Or you may buy your equipment...)**

2. **Design a 40 dB/decade high pass active filter for a cut-off frequency of 300 Hz. You must choose convenient values for resistors and capacitors and also they can be found in our laboratory technician service.(Or you may buy your equipment...)**

3. **Test your designs in a electronic simulation program (Electronics Workbench, Pspice, ADS, etc.) and print in a report format with your calculations, your schematics, your tests which shows the designs provide specifications described above, and your comments on chosen equipment, design procedure, and something like that.**

Experiment:

1. You will be divided in "2-student" groups by lab. assistant. Some groups will test their "preliminary work 1" design. Others will test their "preliminary work 2" design.
2. Secondly, two parties(one tests design 1, other tests design2) connect their circuits in a cascaded form to make a bandpass active filter with a 300-3000 Hz band.Observe whether their bandpass filter works or not.If it works you must demonstrate it for all conditions which will be described by you (input voltage range,gain/frequency graphs,etc.)

Summary, REPORTing, Grading:

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!!! Please write your summary about experiment clear, don't forget to add your all group members ID# and name. You are free for the written language !!! Design part has %75 pts.