**ENGR 103-19 Design Project**

**Team ?? – Fall 2015**

Delete this text box before printing your report. Also, delete all *highlighted instructions* provided in this skeleton file as you edit each section of your report. Do NOT change any of the formatting or page setup.

*paste in team picture here*

#### Project Report Evaluation – Team ID: ??

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| *Team Member* | *1.0* | *2.0* | *3.0* | *App*  | *Tech\** | *TOTAL* |
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|  |  |  |  |  |  |  |
| *Maximum Points Possible* | 15 | 40 | 10 | 10 | 25 | 100 |

*\* technical content, writing style, professionalism, clarity, completeness*

##### Instructor comments:

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**Abstract**

*Your job is to design and construct a loudspeaker enclosure of a prescribed type (sealed box, bass reflex, labyrinth, damped pipe with constant cross-section, or damped pipe with tapering) and measure its performance. Compare and contrast both the expected and the measured performance of your design vs. the other enclosure types. Finally, suggest possible improvements that could be made in a “second iteration” of your design.*

1. **Introduction**

Outline:

* introduce the team members (separate paragraph written by each team member)
* describe your motivation for taking this course
* describe what you learned from completing the design project
* describe any impact the material covered in this course has had on your choice of major and/or future career

*Length should be about one page.*

1. **Enclosure Design**

## *Describe the results obtained using ajdesigner*

Outline:

* describe the type of enclosure you constructed and the rationale for choosing it over other potential choices
* list the components you selected for your design and the rationale underlying your choices
* list your woofer’s relevant small signal parameters
* for sealed box designs, describe the rationale for your choice of Qts; for vented enclosures, describe the rationale for your choice of alignment (SBB4, QB3, or SC4) and your choice of port diameter (Dp)
* copy and paste the ajdesigner box calculator results (box dimensions) and describe how close your finalized (constrained) design is to the “golden ratio” (unconstrained dimensions determined by ajdesigner)
* list the calculated parameters determined by ajdesigner: Vb (box volume), Fb (box resonance), F3 (-3 dB half power frequency), and Lp (length of port – vented designs only)
* copy and paste the LF (woofer) frequency response curve predicted by ajdesigner
* describe how well the response curve predicted by ajdesigner matches the measured response curve

*Length should be about two pages.*

# **Project Summary**

Outline:

* discuss how your enclosure design “stacks up” against the others based on results of the “Sound Off” competition
* discuss what you would change in your design to improve its performance (i.e., make it more competitive)

*Length should be about one page.*

**Appendix A:**

**Measured Frequency Response**

*All speakers will be measured at 1 meter on-axis with identical input power level – the “composite chart” will be posted on the course web site for everyone to use.*

**Appendix B:**

**Measured Drawings and Construction Details**

*Include measured drawings and other construction details here.*

**Appendix C:**

**Wiring Diagram**

*Include the wiring diagram for your loudspeaker system here.*