

EE 254
Project 6: Exam 3
Oscillator Circuits

Goal: To learn, design, simulate, build and test Op-Amp based and discrete oscillator circuits. Individual goals are:

- To self-learn the theory behind oscillator working for:
 - Op-Amp based oscillator circuits
 - Discrete based oscillator circuits using either BJT or MOSFET.
- Design both the Op-Amp based and discrete oscillator circuits for the given specifications. Show all mathematical calculations and relevant theory behind the design equations.
- Simulate the designed circuits using either Microcap or PSpice simulation software. Tweak the design, if necessary, for final construction.
- Build and test the final design.
- Comment on the results obtained and the working of each oscillator circuit.

Specifications:

Name	Op-Amp		Discrete		
	Type	Frequency (Hz)	Type	Device	Frequency (Hz)
	Phase-Shift	1K	Hartley	MOSFET	10K
	Wien-Bridge	3K	Hartley	BJT	5K
	Phase-Shift	500	Hartley	MOSFET	1K
	Wien-Bridge	5K	Colpitts	BJT	6K
	Phase-Shift	8K	Colpitts	MOSFET	1.5K

Deliverables:

Project Demonstrations: Project demonstrations are ongoing. Demonstrate as your finish the project. The final date of demonstration is Friday, December 6, 2013, 5 pm.

Report: A detailed handwritten report must include the design and analysis for each type of the circuit built. Include the theoretical analysis behind the oscillator circuits assigned to you. The report is due at the time of demonstration.

Grading: Project 6 is equivalent to Exam 3. The final score on project 6 will be your exam 3 score.