EE502P Analog System Design Laboratory

Credit: 0-0-3-2 Approval: Approved in 2nd Senate

Students intended for: EE 3rdyearand CS 3rdYear

Elective or Core: Elective Semester: Even

Prerequisite: Knowledge of basic analog electronics, basic circuit analysis, Networks and Systems

Course objective:

Analog System Design Laboratory course exposes the students to the world of analog from system design perspective and mixed signal processing. The course enables the student to understand and address the challenges as a system designer. Today, there are several manufacturers offering large number of integrated circuits keeping in mind the diverse requirements for various applications. This course helps the students learn that as a system designer how they would reason out the right integrated circuit for the right application and also take decisions on how the system level cost or power or performance can be optimized and perform tradeoffs of various design parameters.

The goal of the course is to develop the students' ability to design and conduct experiments, analyze and interpret data, ability to design a system which meets the desired specifications, ability to identify, formulate, and solve engineering problems, ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

The course is based on the Analog System Lab modules prepared by Texas Instruments. System Lab Kit ASLKv 2010 Starter Kit from Texas Instruments will be used for performing the experiments and also simulation tools will be used for analysis exhaustively.

Experiments:

1. Negative Feedback Amplifiers and Instrumentation Amplifier
2. Regenerative Feedback System, Astable and MonostableMultivibrator
3. Integrators and Diferentiators
4. AnalogFilters
5. Self Tuned Filters
6. Function Generator and Voltage Controlled Oscillator
7. Phase Locked Loop
8. Automatic Gain Control/Automatic Volume Control
9. DC-DC Converter
10. Low Dropout (LDO)/Linear Regulator

Text & Reference Books:

JeraldG.Graeme.*ApplicationsofOperationalAmplifiers:ThirdGeneration Techniques*

James K. Roberge.*Operational Amplifiers: Theory and Practice*. Wiley, New York

B Razavi. *Fundamentals of Microelectronics*

A. Sedraand K. Smith.*Microelectronic Circuits*