

ECE 354 - ELECTRONIC CIRCUITS

(1)

INTRODUCTION

THIS COURSE ASSUMES YOU HAVE TAKEN AN INTRODUCTORY ELECTRONICS COURSE. YOU SHOULD HAVE KNOWLEDGE IN SINGLE-TRANSISTOR AMPLIFIERS (WITH RESISTIVE LOADS).

THE PURPOSE OF THIS COURSE IS TO DEVELOP A BETTER UNDERSTANDING OF ANALOG CIRCUITS.

THIS COURSE COVERS

- CURRENT MIRRORS
- DIFFERENTIAL AND MULTISTAGE AMPS
- FREQUENCY RESPONSE
- FEEDBACK
- POWER AMPLIFIERS
- INSIDE OPAMP CIRCUITS

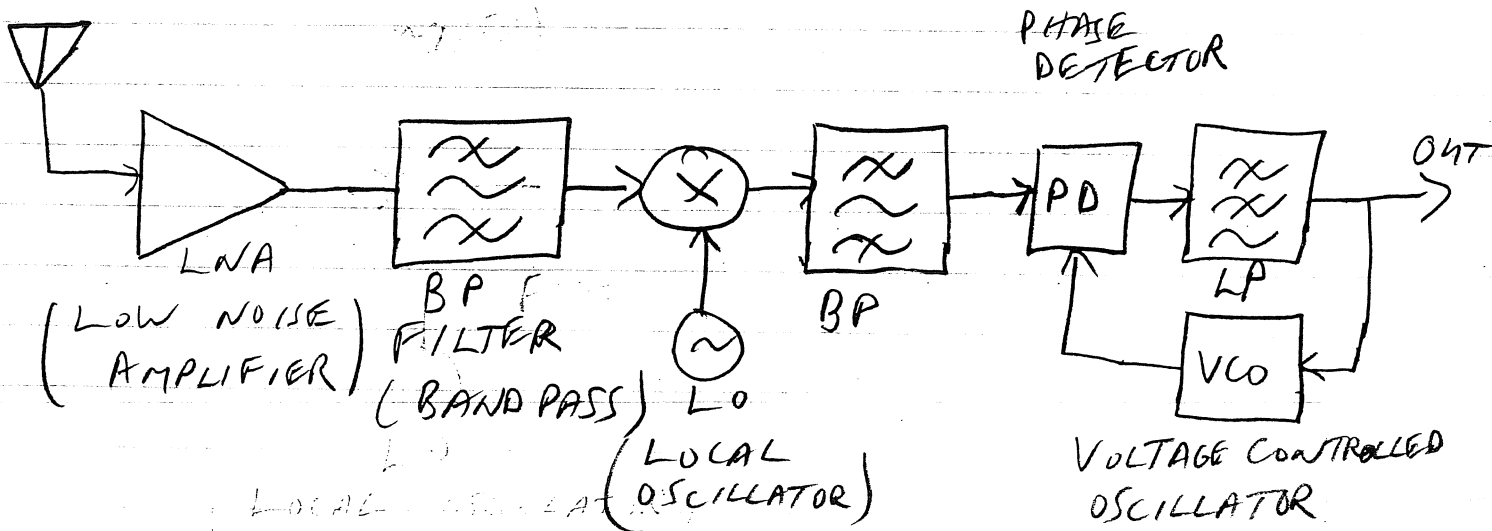
WHY ANALOG ?

- ISN'T EVERYTHING GOING DIGITAL ?

YES AND NO

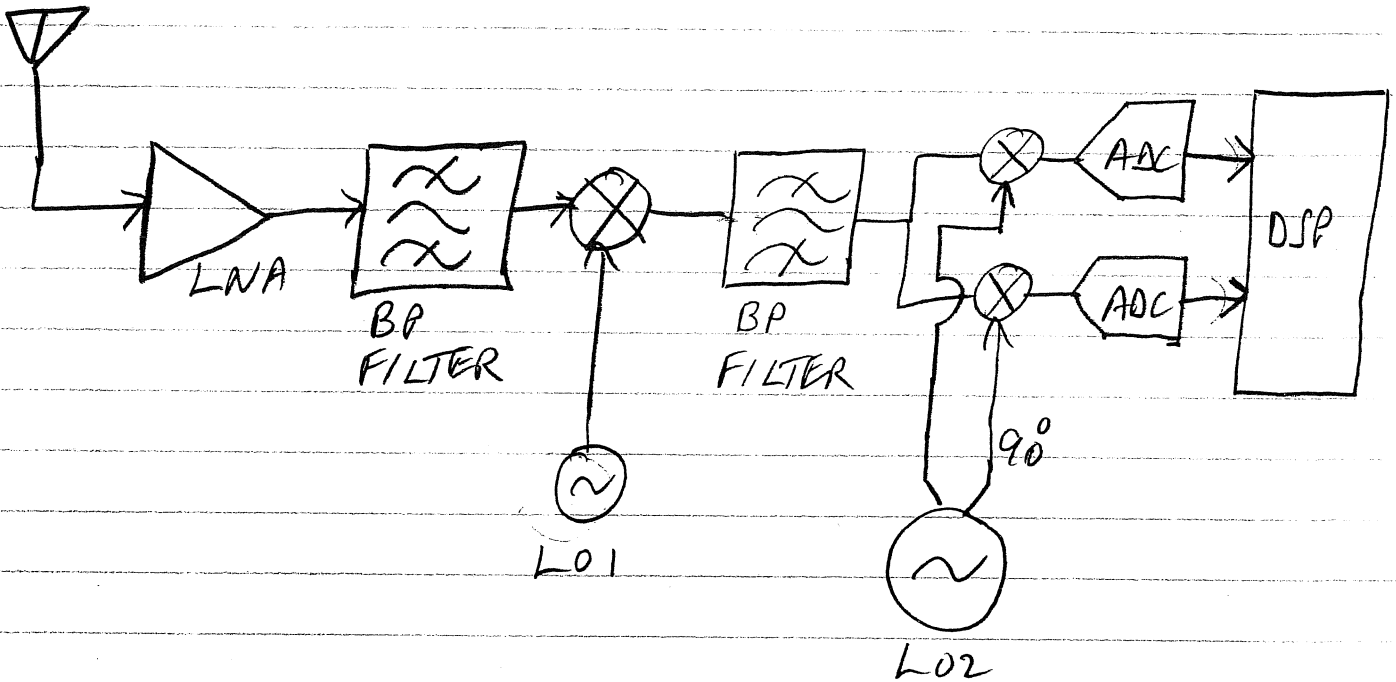
IT IS TRUE THAT MORE DEVICES ARE DIGITAL THAT WERE ANALOG BEFORE. BUT A DIGITAL WIRELESS PHONE HAS MORE ANALOG TRANSISTORS IN IT THAN AN ANALOG WIRELESS PHONE.

SIMPLE FM PHONE WIRELESS RECEIVER



DIGITAL PHONE WIRELESS RECEIVER

ANTENNA



ADC'S ALONE HAVE MORE TRANSISTORS THAN REST OF CIRCUIT.

BUT "DIGITAL" RECEIVER HAS BETTER PERFORMANCE.

ALSO "DIGITAL" CHIPS ALMOST
ALWAYS HAVE SOME ANALOG.

- MEMORY \Rightarrow SENSE AMPS TO READ BITS
- MICROCONTROLLERS \Rightarrow OSCILLATORS, ADC, DAC
SENSE AMPS, ETC
- MICROPROCESSORS \Rightarrow SERDES { SERIAL ATA
PCI EXPRESS

PHASE-LOCKED-LOOPS
SENSE AMPS