RF Active Circuits

Component
École Nationale Supérieure d'Électrotechnique d'Électronique d'Informatique d'Hydraulique et des Télécommunications

Presentation

Objectives

At the end of this course, students will be able to:

- Define the specifications of an amplifier.

- Choose amplifier architectures that meet their specifications.

- Design amplifiers that meet criteria for power gain, linearity, noise, and power efficiency.

Description

This course provides students with the knowledge they need to design RF amplifiers using hybrid and integrated (MMIC) technology.

Microwave technology

RF amplifiers:

HEMT: operation, IV characteristics

Linearity: P&dB, IP3, C/I3

Efficiency, PAE

Choice of amplification class

Transistor stability

Non-contractual information.
Last update on 28 October 2025

Amplifier design:

- Power matching
- Fluence graphs
- Gain optimization
- Broadband amplifiers

Design example

Fixed-gain amplifier

Low-noise amplifier

Oscillators

Pre-requisites

Transmission lines (N7EE09D)

Non-contractual information.
Last update on 28 October 2025