CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

ECE Department

Value added courses

20ECV03

Course Title: Radio Frequency Integrated Circuits

Instructions	30L Hours per Week

Fundamentals of RF circuits and systems, Channel, Gain compression, P1dB, Cross modulation, Inter modulation, IM3, IIP3, SFDR, Transmit mask. Transmitter and Receiver architectures.

Low Noise Amplifiers: Resistive terminated CS and CG LNA, Inductive degenerated LNA, Shunt feedback LNA, Noise cancelling LNAs, Linearity improvement techniques. Power combining, Linearity improvement techniques

Mixers: Specifications, NL system as a mixer, Active mixers, Passive mixers

Type-I PLLs, Charge pump PLLs, Mathematical model, Design issues and Phase noise Frequency synthesizers: Integer N synthesizers, Dividers.

Texts/ References:

1) B. Razavi, "RF Microelectronics", 2nd Ed., Pearson, 2012.
2) Thomas H. Lee, "The design of CMOS radio-frequency integrated circuits", 2nd Ed., Cambridge University Press, 2004.