Analog Circuits

1. Title: **Analog Circuits**
2. Credit Structure (L-T-P-Cr): 3 0 3 4.5
3. Course Number: [a] Existing: **EL-213**
4. Category: Core course
5. Prerequisites: None
6. Foundation for: EL-426, EL-516

7. Abstract Content:
Primary: **(Theory): BJT transistors, biasing, small-signal analysis, single-transistor amplifier configurations (CE,CB,CC), frequency response, feedback, stability.**

Optional:

8. Suggested Text/s:
(1)Microelectronic Circuits by A. Sedra, K.C. Smith, 5th Edition. Oxford University Press.
(2) Analysis & Design of Analog Integrated Circuits by P. R. Gray, P. Hurst, S. Lewis, R. Meyer; John Wiley.

9. Detailed Contents: Table below

10. The format of the Detailed Course content is as follows:

Content (2 -3 lines per 4 – 6 lectures)	*No of lectures*
BJT Transistor and diode characteristics	*1*
Regions of transistor operation	*1*
Biasing & bias stability of Transistors	*1*
Self-biased circuits	*2*
Small-signal analysis	*4*
Small-signal model of transistor	*1*
AC Equivalent circuit	*2*
Capacitive coupling, emitter-bypassing	*5*
Single-stage CE amplifiers: input,output impedance	*4*
Emitter degeneration	*2*
CB, CC amplifiers & applications	*2*
Sinusoidal steady-state analysis	*1*
Multi-stage amplifiers	*1*
High-frequency transistor model	*1*
Miller Effect	*1*
Open-circuit time constant method for dominant pole	*1*
Effect of decoupling capacitors: low-frequency cutoff	*1*
Bode plot	*1*
Basic concepts in Feedback	*2*
Stability analysis	*1*

Unity-gain frequency of amplifier, Phase-margin	*1*
Compensation in multi-stage amplifiers:dominant pole compensation	*2*
Astable and Monostable Multivibrators	*1*
Active load	*1*
Differential Amplifiers	*1*

11. The outcomes and objectives should give on the one hand the skills and competencies acquired by the student as well as the value of the course towards industry/ research/ academic objectives.

Etiquette and expectations

Mobile phones off
85% attendance
Don't enter the class if more than 5 minutes late
Must solve problems given in classes