1. **Course number and name**
   EE 476/576: Design of Analog CMOS Integrated Circuits

2. **Credits and contact hours**
   3.0 (three lecture hours per week)

3. **Instructor’s or course coordinator’s name**
   Subhanshu Gupta

4. **Textbook, title, author, and year**
   
   *Other supplemental materials*

5. **Specific course information**
   a. **Catalog description:** Analysis and design of linear integrated circuits in modern MOS and BJT technology; current mirrors, gain stages, operational amplifiers – single stage and two-stage, reference generation circuits, frequency response, and compensation. This is an elective in the microelectronics track.
   
   b. **Prerequisites or co-requisites:**
      By course: EE 311, 321 (or co-requisite), EE 489 (or corequisite).
      By topic: Basic circuit analysis, elementary electronics, p/n junction and transistor characteristics.

6. **Specific goals for the course**
   At the end of this course, students must be able to:
   - Analyze, design and simulate CMOS building blocks in particular for analog applications such as linear regulators, bandgap circuits, voltage- and current-references etc. (1a,1b, 1c, 1d, 1e, 2a, 2b, 2c)
   - Capable of operating industry-standard tools such as Cadence Spectre. (6a, 6b, 6c, 6d)
   - Map theoretical concepts into experimental designs in simulation environment. (1a, 1b, 1c, 1d, 1e, 6a, 6b, 6c)
   - Write a report on the design and test of the circuit. (3a, 3b, 3d, 3e)

7. **Brief list of topics to be covered**
   - Large signal behavior for semiconductor devices,
   - Semiconductor device models,
- Single-stage single-ended amplifiers,
- Single-stage differential amplifiers,
- Current mirrors,
- Operational amplifiers,
- Stability and frequency compensation,
- Noise in semiconductor devices and circuits,
- Feedback circuit analysis,
- Fully-differential operational amplifiers.