1. **Course number and name**  
   EE 311: Electronics

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*  
   Instructor notes/slides will be provided for some topics.

5. **Specific course information**  
   a. *Catalog Description:* Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits.  
   b. *Prerequisites or corequisites:* Certified in the EE/CptE. By course: EE 261 with grade of C or better. By topic: KCL, KVL, basic circuit analysis including DC, AC, and transient analysis. Courses that require this as a prerequisite: EE 321, EE 352, EE 466, EE 476/576, EE 486, EE 496

6. **Specific goals for the course**  
   By the end of this course, students will be able to:  
   • Understand fundamentals of PN Junction Diodes, MOSFETs and Bipolar Transistors to electronic circuit designs (1a, 1b, 1c, 1d, 1e, 2a, 2b, 2c, 2d)  
   • Understand small- and large-signal characteristics Diodes and Transistors (1a, 1b, 1c, 1d, 1e)  
   • Design and simulate linear circuits in Cadence and Matlab (6a, 6b, 6d, 6e)  
   • Map theoretical concepts into experimental designs in simulation environment (6a, 6b, 6d, 6e)

7. **Brief list of topics to be covered**  
   • Signals and Amplifiers,  
   • Operational Amplifiers,  
   • Semiconductors and Diodes,  
   • MOSFETs,  
   • MOSFET small- and large-signal characteristics,  
   • BJTs,  
   • BJT small- and large-signal characteristics,  
   • Single-stage amplifiers,  
   • Frequency Response,  
   • Differential- and multi-stage amplifiers.