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**

6. **Catalog Description:** Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits.

7. **Prerequisites or corequisites:** Certified in the EE. 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 352, EE 476/576.

8. **Required, elective, or selected elective:** Required for BS CptE/BSEE majors.

9. **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)

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