Syllabus for EE 211 and ES 332

1. Introduction to digital logic gates, Boolean algebra and truth tables

2. Karnaugh map reduction of Boolean expressions

3. Review of resistive circuit concepts

4. Node voltage and mesh current analysis

5. Review solution of simultaneous equations

6. Superposition

7. Thevenin and Norton equivalent circuit development

8. Operational amplifier, ideal model, simple model using dependent voltage source input and output resitance. Simple Op-Amp circuit analysis

9. ADC and DAC

10. Definition of inductance and capacitance. Circuit equations involving L and C including initial conditions

11. Definition of Laplace transform. Development of Laplace transform properties

12. Application of Laplace transform to solution of RLC circuit problems

13. Sinusoidal steady state analysis of RLC circuits using $e^{j\omega t}$ time dependence

14. Average power for sinusoidal voltages and currents. Effective (RMS) values

15. Three phase, power factor, reactive power, maximum power transfer

16. Introduction to motors