Principles of Electric Circuits

L1. circuit model, reference directions, power

L2. circuit elements, Kirchhoff's laws

L3. circuit reduction technologies

L4. Op Amps

Discussion 1. Basic elements of digital circuits

L5. circuit analysis methods

L6. circuit theorem

L7. two-port network

L8. non-linear circuits

L9. small-signal analysis of non-linear circuits, inductor and capacitor

L10. first-order circuit analysis at steady excitation

Discussion 2. Application of dynamic circuits

L11. second order circuit analysis, state variables approach

L12. unit-pulse response and Convolution

L13. introduction of power system, phasors

L14. SSS analysis by phasors

L15. power of SSS circuits

L16. mutual inductance

L17. transformers, frequency response and filters

L18. resonance

L19. three-phase circuits