

Department of Electrical and Computer Engineering
The Johns Hopkins University

520.137 Introduction to Electrical and Computer Engineering

Fall 2018

Dates	Tentative Course Syllabus
Aug. 30 – Sep. 7	Introduction. Motivation. Historical Backgrounds. Overview. Labor Day. Signals and Systems. Modeling. Analog and Digital Representations.
Sep. 10 – 14	Circuits. Currents. Voltages. Power. Energy. Resistors and Resistance. Current and Voltage Law. Lab 1.
Sep. 17 – 21	Circuit Modeling: Norton and Thevenin Equivalent Circuits. Capacitors and Capacitance. Inductors and Inductance.
Sep. 24 – 28	Simple RC Circuits. Analog Filters. Microphones and Loudspeakers. Lab 2.
Oct. 1 – Oct. 5	Transistors. Binary Number System. AND OR NAND NOR Gates. Combinational Logic Circuits.
Oct. 8 – 12	Exam I Review. Exam I. Lab 3.
Oct. 15 – 19	Sequential Logic Circuits. Set-Reset and Toggle Flip-Flops. Counters. RAM. Finite-State Machines. Fall Break Day.
Oct. 22 – 26	Sampling. Nyquist Sampling Rate. Aliasing Error. Lab 4. Quantization. A/D and D/A Conversion.
Oct. 29 – Nov. 2	Signal Processing. Filtering. Image Processing. Information Theory. Coding. Decoding. Compression.
Nov. 5 – 9	Lab 5. Exam II Review. Exam II.
Nov. 12 – 16	Shannon-Fano Code. Huffman Code. Error Detection and Correction.
Nov. 19 – 23	Thanksgiving Vacation.
Nov. 26 – Nov. 30	Bar Codes. USPS Code. UPC. Lab 6. Wireless Communications and Cell Phones. Internet. Google PageRank.
Dec. 3 – 7	Final Design Project.
Dec. 15	Final Exam 10AM–1PM Shaffer 304.