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## INTEGRATED CIRCUITS IN DIGITAL SYSTEMS

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**EET 223****Integrated Circuits in Digital Systems****4.0 UNITS**

An introduction to the characterization and operation of integrated circuits in digital systems. A description of the various families of digital integrated circuits are given, including T-FL, ECL, and CMOS. Emphasis is on the operation and applications of TTL digital IC's such as the 7400 family of chips. Basic digital blocks such as the AND, OR and NOR gates are first studied, followed by the combinational and sequential IC systems, which are commercially available. These include the hex inverter, NAND/NOR gates, BCD to decimal decoder, exclusive OR, AND-OR-INVERT gate, full adder flip-flops, and memory. Also, counters shift registers and A/D-D/A conversion are discussed. The laboratory component of the course permits the student to properly breadboard, test, and evaluate digital integrated circuits and to observe and verify the applications of these systems by performing experiments in IC logic elements, combinational logic analysis and implementation, decoders, data selectors and data distributors, counter analysis, counters and registers, and trouble-shooting project.