This course covers the analysis, design, simulation, and construction of digital logic circuits and embedded systems. The material in this course provides the necessary tools to design digital hardware circuits based on design techniques such as Karnaugh maps and Finite State Machines. The course begins with the study of binary and hexadecimal number systems, Boolean algebra, and their application to the design of combinational logic circuits. The first half of the course focuses on designs using medium-scale integration (MSI) circuits and Field Programmable Gate Arrays (FPGAs) to implement combinational logic functions. The second half of the course emphasizes sequential logic circuits. Laboratory work in this half of the course focuses on using very high speed integrated circuit hardware description language (VHDL) to simulate digital systems and to program those systems in hardware. As a final project, cadet teams design, build, and test a digital logic system.

Lessons: 40 @ 55 min (2.500 Att/wk)  Labs: 7 @ 120 min

Special Requirements: A two-part design project (0.5 design credits).

Prerequisite(s): CS105  
-Or-  CS155  
-Or-  IT105  
-Or-  IT155

Disqualifier(s): EE300