

**ELEI 217**  
**ADVANCED APPLICATIONS DIGITAL CIRCUITS**  
**3 Semester Hours**

**The Community College of Baltimore County**

**Description**

**Advanced Applications Digital Circuits**

Discusses troubleshooting and repair of digital electronic systems and subsystems to the lowest repairable module using specialized electronic test equipment; demonstrates specific methods of troubleshooting with emphasis on schematics and logic diagrams. Lecture two hours and lab two hours per week one semester.

Prerequisite: ELEI-205 – Microprocessors and Micro-computers or consent of the instructor

**Overall Course Objectives.**

Upon completion of this course the student will be able to:

Demonstrate in both written and oral form a broader understanding of digital systems, their functions, design, and operation. Demonstrate in a laboratory environment an ability to troubleshoot typical digital systems.

**Major Topics**

Power-on System Test, pass/fail determination, audio tone fault indications, error code fault indications. Disk Formatting, (IBM P.C.), formatting sequence, formatting results. Diagnostic programs, loading and running diagnostic software, Pass/Fail recognition, fault area determination. Flow charts, standard flow chart symbols, flow chart construction from a given routine, determination of routine from a flowchart. Utilizing flow charts to systematically isolate faults (IBM P.C.), power-on self test, no response, system clock failure, start-up ROM failure, system power supply faults, D.C. power distribution faults, speaker faults, read-only-memory faults, keyboard faults, display faults, printer faults, disk drive faults. Utilizing flow charts to isolate faults within the diskette drive to the lowest repairable module, utilizing flow charts to systematically isolate faults within a printer to the lowest repairable module. General Digital Troubleshooting, logic types, (CMOS, TTL, etc.) positive logic symbology, negative logic symbology, Bit chasing with a logic probe during fault conditions, timing waveform diagrams.

**Course Requirements**

The instructor will administer Exams (60%), laboratory assignments (30%), homework assignments (10%).

**Other Course Information**

**Additional information about this or any other Industrial electricity/electronics course can be obtained by contacting the IEE/Telecommunications program director.**