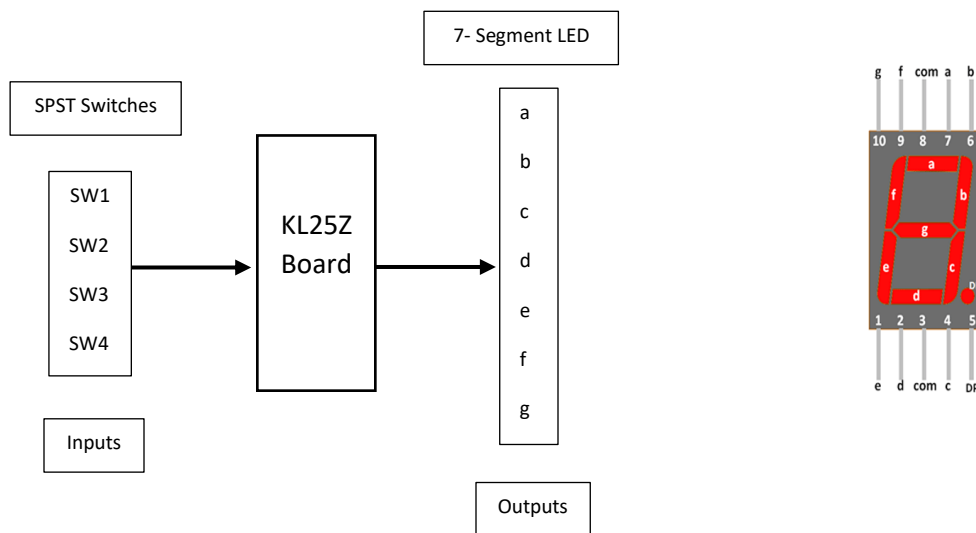


**Oakland University**  
**School of Electrical & Computer Engineering**  
**Winter 2023**  
**ECE 4721/5721**  
*Professor Phares A. Noel, II Ph.D., PE*

**Lab #3**  
**Due on March 17, 2023**



**7 Segment LED Truth Table**

Deciamal Number	INPUT - Switches				OUTPUT - LED Segments						
	SW4	SW3	SW2	SW1	a	b	c	d	e	f	g
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1

- Note: Your program should convert the input binary switch pattern (a b c d e f ) to the corresponding decimal number, and send the appropriate signals to the output ports of the development board to have the decimal number displayed on the 7-Segment LED Modules.**



- Port A - 8 Port A GPIOs are accessible on the FRDM board**
- Port B - 8 Port B GPIOs are accessible on the FRDM board**
- Port C - 16 Port C GPIOs are accessible on the FRDM board**
- Port D - 8 Port D GPIOs are accessible on the FRDM board**
- Port E - 13 Port E GPIOs are accessible on the FRDM board**

## Grading Rubric

**Note:** *Submission must have mandatory Title Page with Name/Date, etc. per syllabus. 5 points will be deducted from final score if not present in submission.*

### 7-Segment Display Experiment (100 points)

- **50 points** - Video demonstration of 7-segment display iterating through all values shown in the above truth table (submitted along with report)
- **20 points** - Description of experiment
- **10 points** - Full source code in report
- **10 points** - Hardware Description (I/O pins used, external components, etc.)
- **10 points** – Flow diagram explaining your implementation