CS/ECE	6780/5780	
A	Davis	
Toda	ay's topics:	
•Output capture		
 Pulse Width Modulation 	on	
 Pulse Accumulation 		
•all useful options f	for Lab7	
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OMn	OLn	Effect of when TOCn=TCNT
0	0	Does not affect OCn
0	1	Toggle OCn
1	0	Clear OCn=0
1	1	Set OCn=1
G	Grrr – this	s could have been more intuitive – how?



Periodic Interrupt Using Output Co	ompare
#define PERIOD 1000	
unsigned short Time;	
<pre>void OC6_Init(void){</pre>	
asm sei // Make atomic	
TSCR1 = 0x80; // Turn on timer	
TSCR2 = 0x02; // 1 MHz TCNT	
TIOS = 0x40; // activate OC6	
TIE = 0x40; // arm 0C6	
TC6 = TCNT+50; // first in 50us	
Time = 0; // Initialize	
asm cli } // enable IRQ	
<pre>void interrupt 14 OC6handler(void){</pre>	
TC6 = TC6+PERIOD; // next in 1 ms	
TFLG1 = 0x40; // acknowledge C6F	
Time++; }	
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Parameterized PWM Duty Cycle (cont'd)

```
void interrupt 11 TC3handler (void){
              TFLG1 = 0x08; // ack C3F
              if(PTT&0x08){
                                // PT3 is now high
                TC3 = TC3+High; // 1 for High cyc
              }
              else{
                                // PT3 is now low
                TC3 = TC3+Low; // 0 for Low cycles
              }
            }
            void main(void){
                 High=8000; Low=2000;
                 Init();
                 while(1);
            }
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                                   11
```

 Similar to Need to figur 	max latency issue for input	capture	
 Need to figur 		-	ŧ
• to figur			
	e out the time it takes to proces	s the int	errupt
 plus the 	e time to execute the handler		
» the i	if-then-else branch pattern in the ha	ndler crea	ites a 1 cycle
» in g	eneral you'll only care about the wor	st case	
• 1	since that will govern your real time sche	dule	
 For the pr 	revious code:		
	Component	6812	l
	Process the interrupt (cycles)	9	
	Execute the handler (cycles)	27-28	1
	Total time T (cycles)	36-37	'























