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<b>Course number and name</b>	<b>EE 4510: Microcontroller Applications</b>
<b>Credits and contact hours</b>	3 credits and 3 hours
<b>Course coordinator</b>	
<b>Textbook</b>	HCS12/9S12 An Introduction to Software & Hardware Interfacing (2nd Edition), Huang, 2010, Delmar (Cengage Learning) MicroC/OS – II the Real Time Kernel, (2nd Edition), Jean L. Labrosse, 2002, CMP Books Introduction to Embedded Microcomputer Systems: Motorola 6811 and 6812 Simulation, Jonathan W. Valvano, 2003, Thomson
<b>Course Information</b>	a. Prerequisites: EE 2200 Electronics I and EE 2510 Introduction to Microprocessors b. Selective Elective
<b>Topics to be covered</b>	<ul style="list-style-type: none"> <li>– Introduction to the Motorola HC12/HS12 Microcontroller Families</li> <li>– MC9S12DP512 architecture and memory map</li> <li>– CPU12 Programmer's Model and assembly language programming</li> <li>– Development of C programs for the MC9S12DP512</li> <li>– Interfacing to the Parallel I/O Ports, MC9S12DP512 Interrupts</li> <li>– Programming the Main Timer, Input Capture and Output Compare</li> <li>– Programming the PWM Module</li> <li>– Analog Input and Output Interface</li> <li>– Serial Communications Interface Design</li> <li>– SPI Interface</li> <li>– CAN Interface</li> <li>– Interfacing Static Memory to the MC9S12DP512 External Bus</li> <li>– Design of 8 or 16-Bit Memory Modules, Critical Timing Analysis</li> </ul>