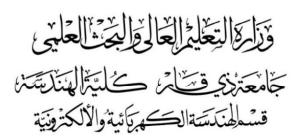
Ministry of Higher Education and Scinetific Research Thi-Qar University Collage of Engineering Electrical and Electronic Engineering Dept





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Course name	EE 4510: Microcontroller Applications
Credits and contact hours	3 credits and 3 hours
Course coordinator	
Textbook	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
Course Information	a. Prerequisites: EE 2200 Electronics I and EE 2510 Introduction to
	Microprocessors
	b. Selective Elective
Topics to be covered	- Introduction to the Motorola HC12/HS12 Microcontroller
	Families
	- MC9S12DP512 architecture and memory map
	- CPU12 Programmer's Model and assembly language programming
	– Development of C programs for the MC9S12DP512
	– Interfacing to the Parallel I/O Ports, MC9S12DP512 Interrupts
	– Programming the Main Timer, Input Capture and Output Compare
	– Programming the PWM Module
	– Analog Input and Output Interface
	– Serial Communications Interface Design
	– SPI Interface
	– CAN Interface
	- Interfacing Static Memory to the MC9S12DP512 External Bus
	- Design of 8 or 16-Bit Memory Modules, Critical Timing Analysis