

SEMESTER <i>Eighth</i>	DEPARTMENT <i>Control Engineering</i>	COURSE TITLE <i>Embedded C Laboratory.</i>
COURSE CODE <i>EC804</i>	HOURS: 3 UNITS: 1	COURSE SPECIFICATIONS <i>Practical Content</i>

Introduction to Embedded Systems and Microcontroller-based Circuit Design

1. C Programming Review and Dissection
2. C Start-Up Module and Simple Digital I/O
3. Analog to Digital Conversion .
4. Serial communication, send and receive characters and formatted strings by using UART and RS232.
5. Generate periodic signal with fixed period and fixed duty cycle by using timer.
6. Programming and configuring the timers interrupts.
7. Pulse-Width Modulation (PWM).
8. Interrupt concepts and behavior and how to program with them in C, Building interrupt subroutines.
9. Interface and operation of stepper motor.

1. John Catsoulis, *Designing Embedded Hardware*, O'Reilly, 2005
2. Ibrahim, Dogan, *Advanced PIC microcontroller projects in C: from USB to RTOS with the PIC18F series*.2008
3. Kirk Zurell, *C Programming for Embedded Systems*, 2000

* Recommended Simulation Programs can be either Windows CE or LABVIEW.