ELL365 (Embedded Systems)
(Slot M, Monday & Thursday 5PM-6.30PM)

1st January- 18th Feb (upto Minor)

Prof. Tapan Gandhi (4 Classes)

Introduction

- *Fundamentals of embedded systems; Overview of Embedded Systems; elements of co-design- part 1, Hardware/software co design concepts.*

(10-12 Classes)

- *Examples of processors*
- *ARM, PIC, (8086 overview may be) etc.;*
- *Schematic diagrams flowchart and assembly programming of above processors*
- *features of digital signal processor;SOC.*
- *Sensors / Transducers/ op-amps etc and their use in Embedded System*
- *memory sub system (overview only)*
- *Actual products case Studies*
- *Embedded System Software: Program Optimization,Concurrent Programming*

25th Feb – 25th April (Minor to Major)

- Prof. Subrat Kar (7/8 Classes)
  - *Buses (I2C, SPI etc.), interfacing protocols (USB, IrDA etc), I/O; testing and debugging,*
    Using programmable logic (FPGAs and PAL/PLAs;
  - *Networked Embedded Systems: special networking protocols (CAN, Bluetooth);*
- Prof. Tapan Gandhi (4/6 Classes)
  - *Real World applications*

Evaluation Criteria: : Minor : 40+ (10) Marks

: Major: 40+ (10) Marks

Medical Reasons: on the day or just after one day (before the exam)

Books:

1. Embedded system design, Marwedel, Peter, Kluwer Publishers, 2004.
2. Design with PIC Microcontrollers, John B. Peatman, Pearson Education Asia.
3. The design of small-scale embedded systems, Tim Wilmshurst, Palgrave 2003.
4. ARM System Developer's guide: Designing and Optimizating system software, Andrew N. Sloss, Dominic Symes, Chris Wright, Morgan Kaufman Publications, 2004.
5. Computers as components: Principles of embeded computing system design, Wayne wolf, Morgan Kaufman Publication, 2000.