COE 561, Term 111

 Digital System Design and Synthesis

HW# 2

Due date: Saturday, Nov. 12

# Consider the function *F(A,B,C,D)* with the following ON-set and DC-set:

#  *FON*= ∑m(0, 2, 3, 4, 5, 7, 8, 10, 12, 13, 15)

#  *FDC*= ∑m(1, 11)

## Apply the EXPAND procedure on the given cover using Espresso heuristics and show the obtained expanded cover. Compare your solution with the result obtained by ESPRESSO tool.

# Consider the function F(A, B, C, D) with **ON-SET=Σm(0, 4, 5, 7, 8, 12, 13, 15)** and **DC-SET=Σm(1, 3, 9, 14)**.

## A cover of the function is given by F = C’ + BD. **Reduce** the cube **C’** using Theorem 7.4.1.

## Use Corollary 7.4.1 to check if the implicant **BD** is an **essential** prime implicant.

# Consider the following cover of a function F*(A,B,C,D)*

#

#

## Determine the relatively essential set of cubes, Er.

## Determine the totally redundant, Rt, and partially redundant, Rp, sets of cubes.

## Find a subset of Rp that, together with Er, covers the function by solving a covering problem.

## Compare your solution with the result obtained by ESPRESSO tool.