



Istanbul Technical University
Department of Computer Engineering

18.11.2016

BLG 231E - Digital Circuits Assignment 4

Due Date: 24.11.2016, Thursday, 17.00.

- Please **write neatly**.
- If you are not preparing your homework in a computer, please show complement of a symbol by putting a **dash** over the symbol (e.g. do not use x' use \bar{x}).
- **Consequences of plagiarism:** Disciplinary regulations of The Council of Higher Education and of the university are applied.
- **No late submissions** will be accepted.

Submissions:

- Please submit your solutions on a paper to the Digital Circuits Course Assignment Box at the department secretary's office

1. Design a 1-bit full adder using a 3x8 Decoder and two OR gates .
2. Design a circuit, which will either subtract A (4 bits) from B (4 bits) or B from A depending on the value of the control input X . If $X = 1$, the output should be $A - B$, and if $X = 0$ the output should be $B - A$. Use only a 4-bit parallel adder, 2x1 MUXs and inverters.