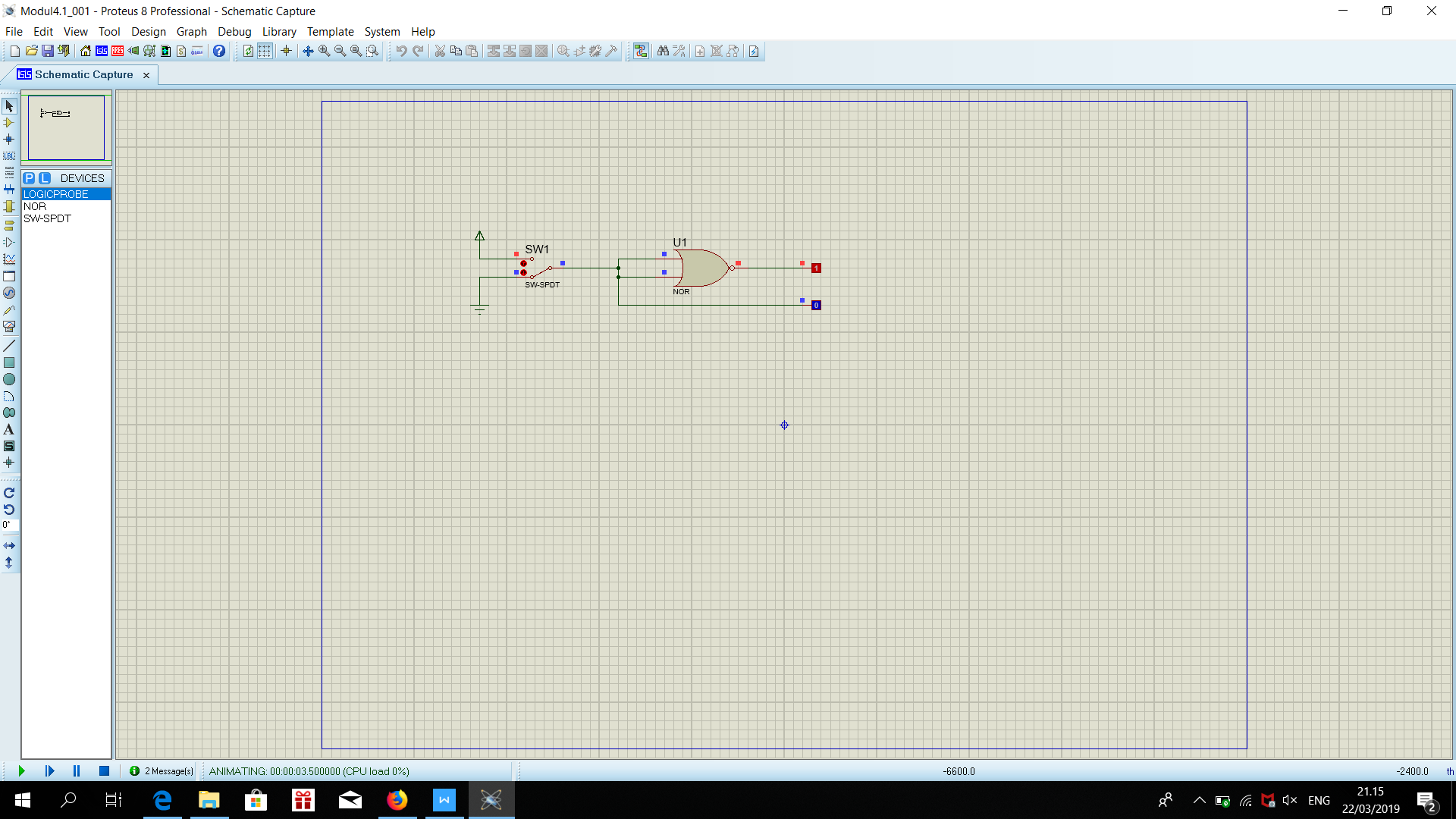
Nama : Oscar Satria Utama

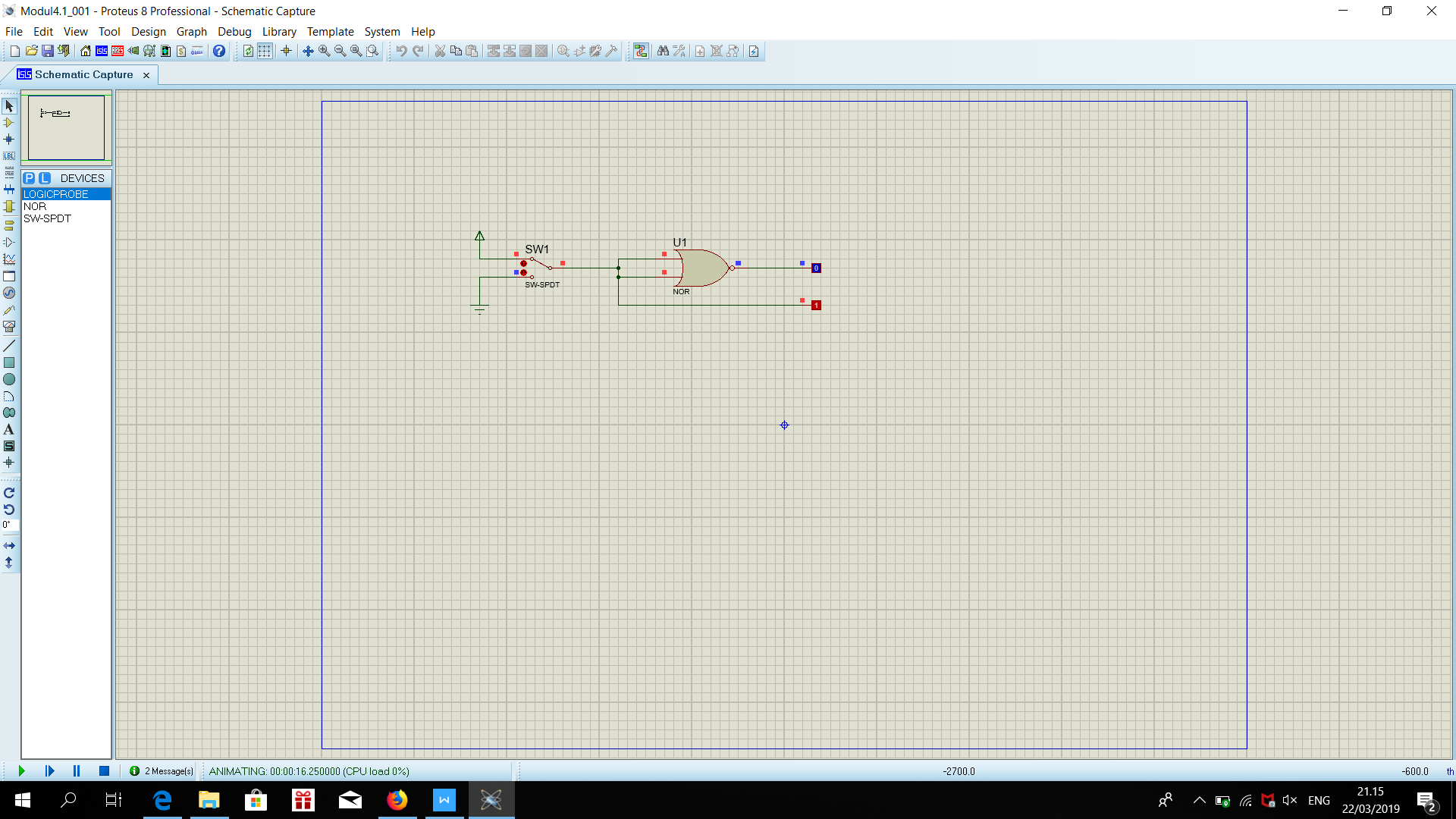
NIM : L200180001

Tanggal Praktikum : 20 Maret 2019

LAPORAN PRAKTIKUM SISTEM DIGITAL MODUL 4

Percobaan 1.Substitusi Pengganti Gerbang Logika





Tabel Kebenaran

|  |  |  |
| --- | --- | --- |
| SW 1 | L2 | L1 |
| 0 | 0 | 1 |
| 1 | 1 | 0 |

Diagram Waktu

|  |  |
| --- | --- |
|  | |
| 0 | 1 |
|  |

L2 :

|  |  |
| --- | --- |
| 1 |  |
|  |
| 0 |

L1 :

Fungsi Boolean :

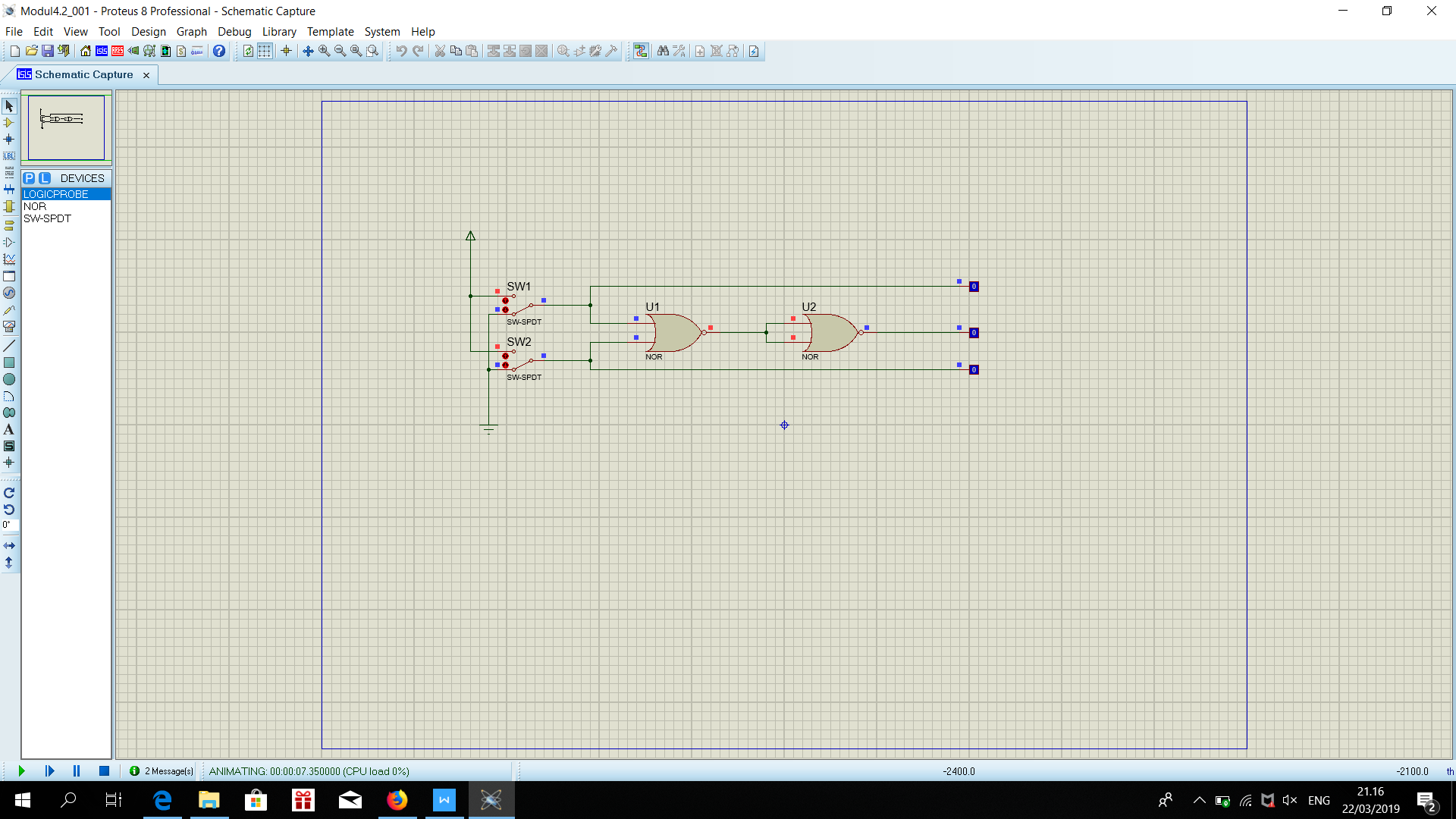
**L1 = L2 + L2 = L2**

Kesimpulan :

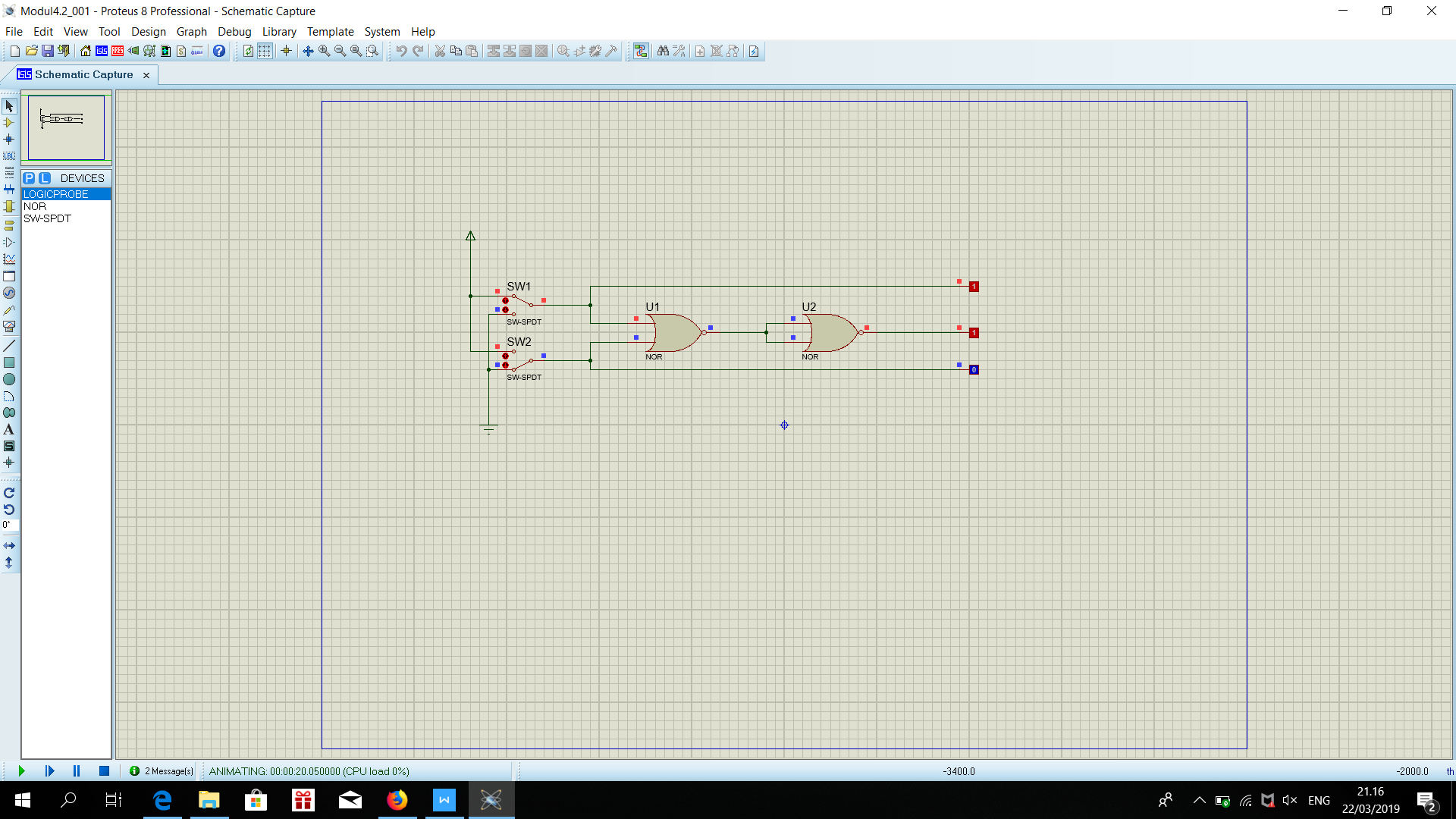
Gerbang NORpada gambar 4.3 membentuk gerbang logikaNOT

Percobaan 2. Substitusi Pengganti Gerbang Logika

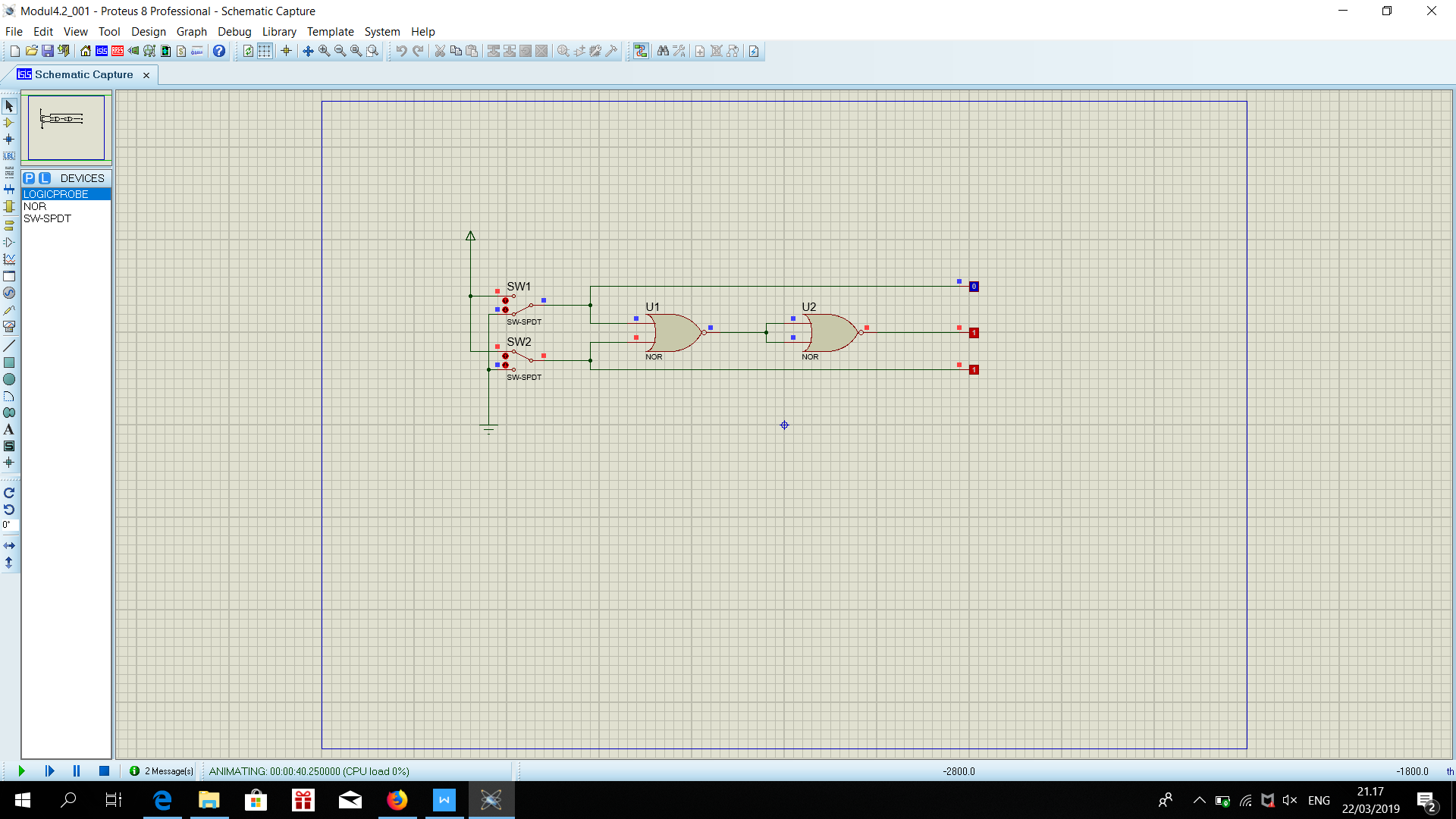
SW 1 = 0 dan SW 2 = 0



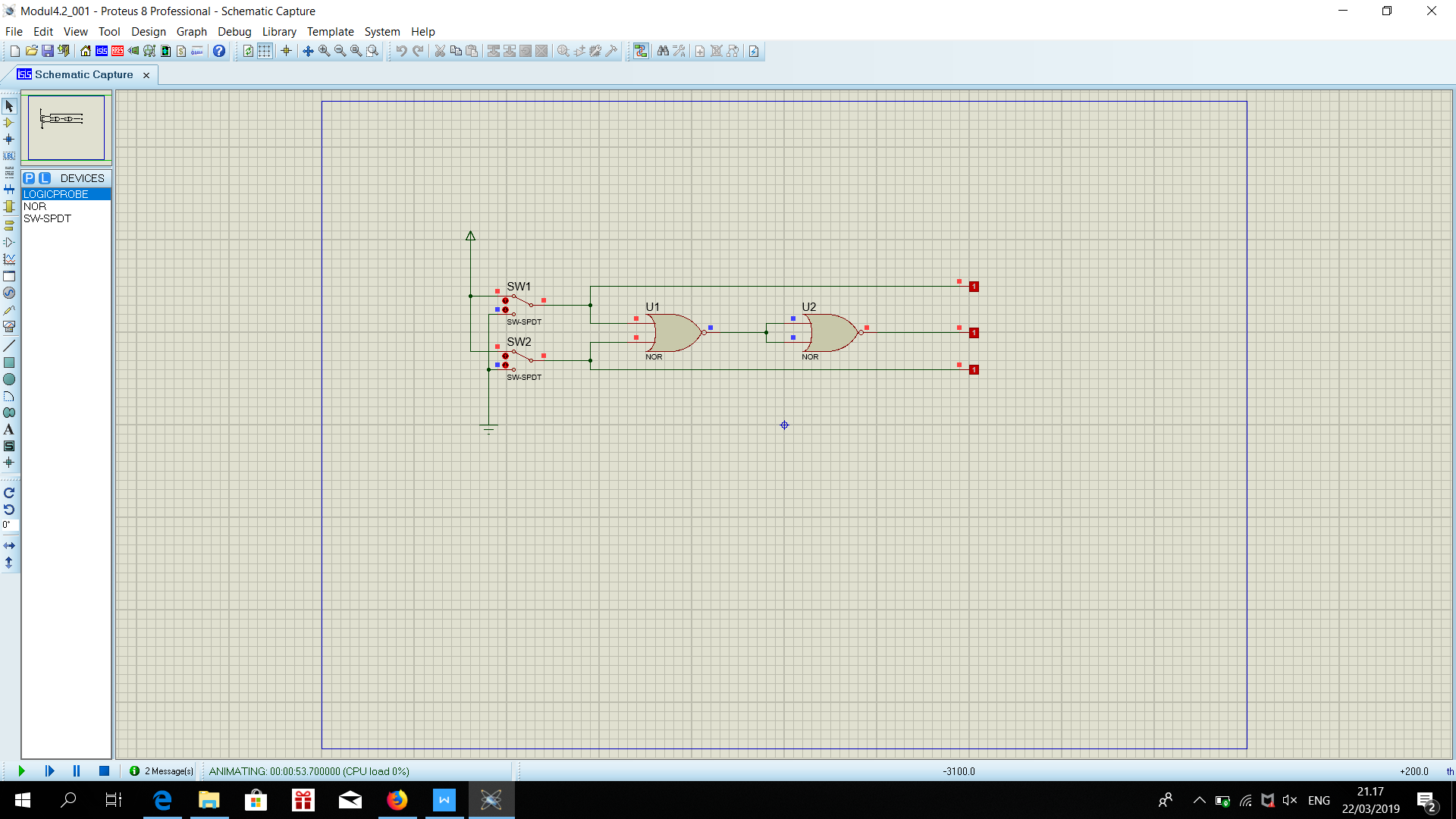
SW 1 = 1 dan SW 2 = 0



SW 1 = 0 dan SW 2 = 1



SW 1 = 1 dan SW 2 = 1



Tabel Kebenaran

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SW 1 | SW 2 | L1 | L2 | L3 |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 | 1 |
| 0 | 1 | 0 | 1 | 1 |
| 1 | 1 | 1 | 1 | 1 |

Diagram Waktu

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 1 | 0 | 1 |
|  |  |
| 1 | |
| 0 | | | |
|  | | | |
|  | 1 | | |
| 0 | | | |
|  | | | |

L1 :

L2 :

L3 :

Fungsi Boolean :

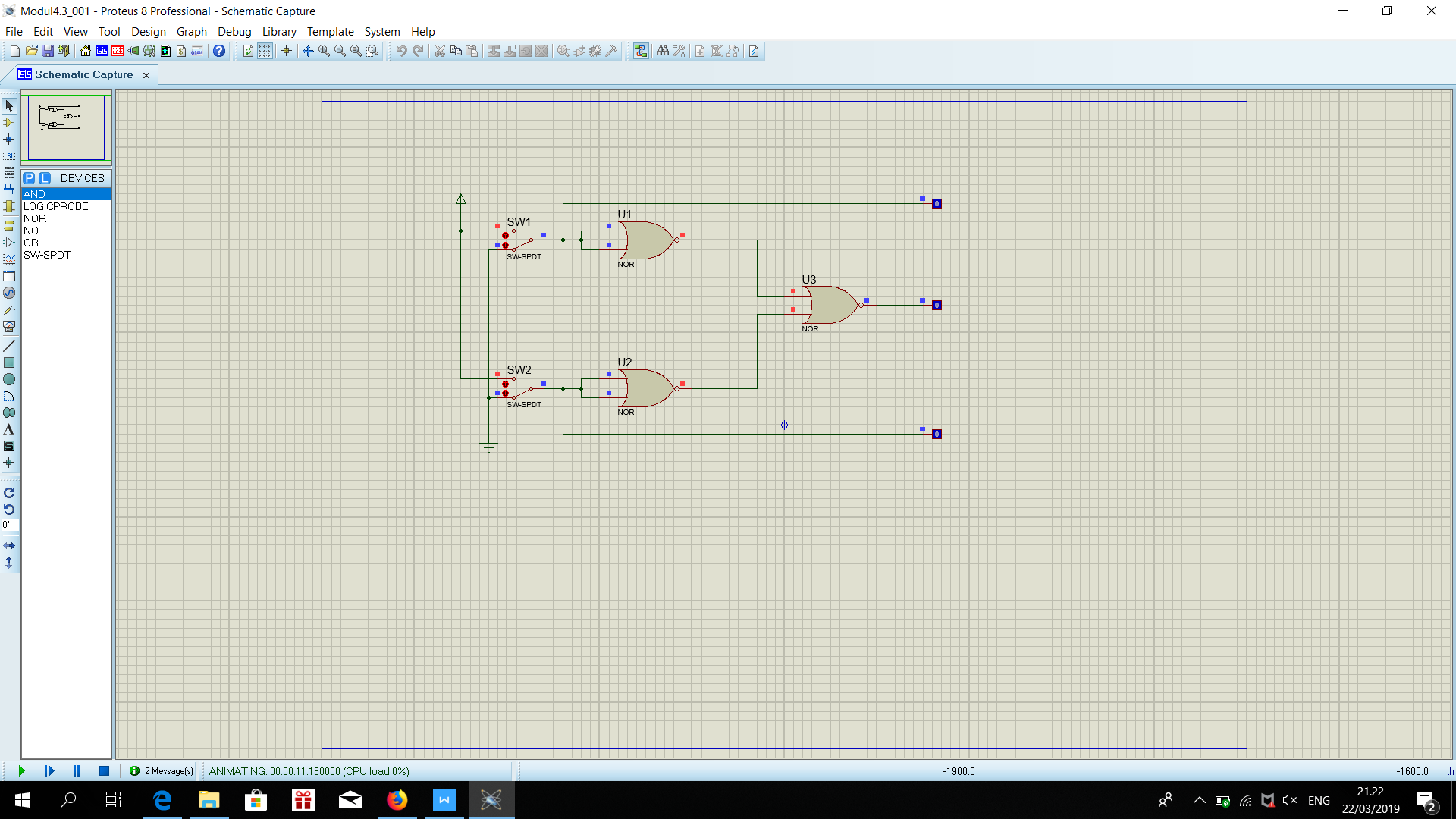
**L3 = L1 + L2 = L1 + L2**

Kesimpulan :

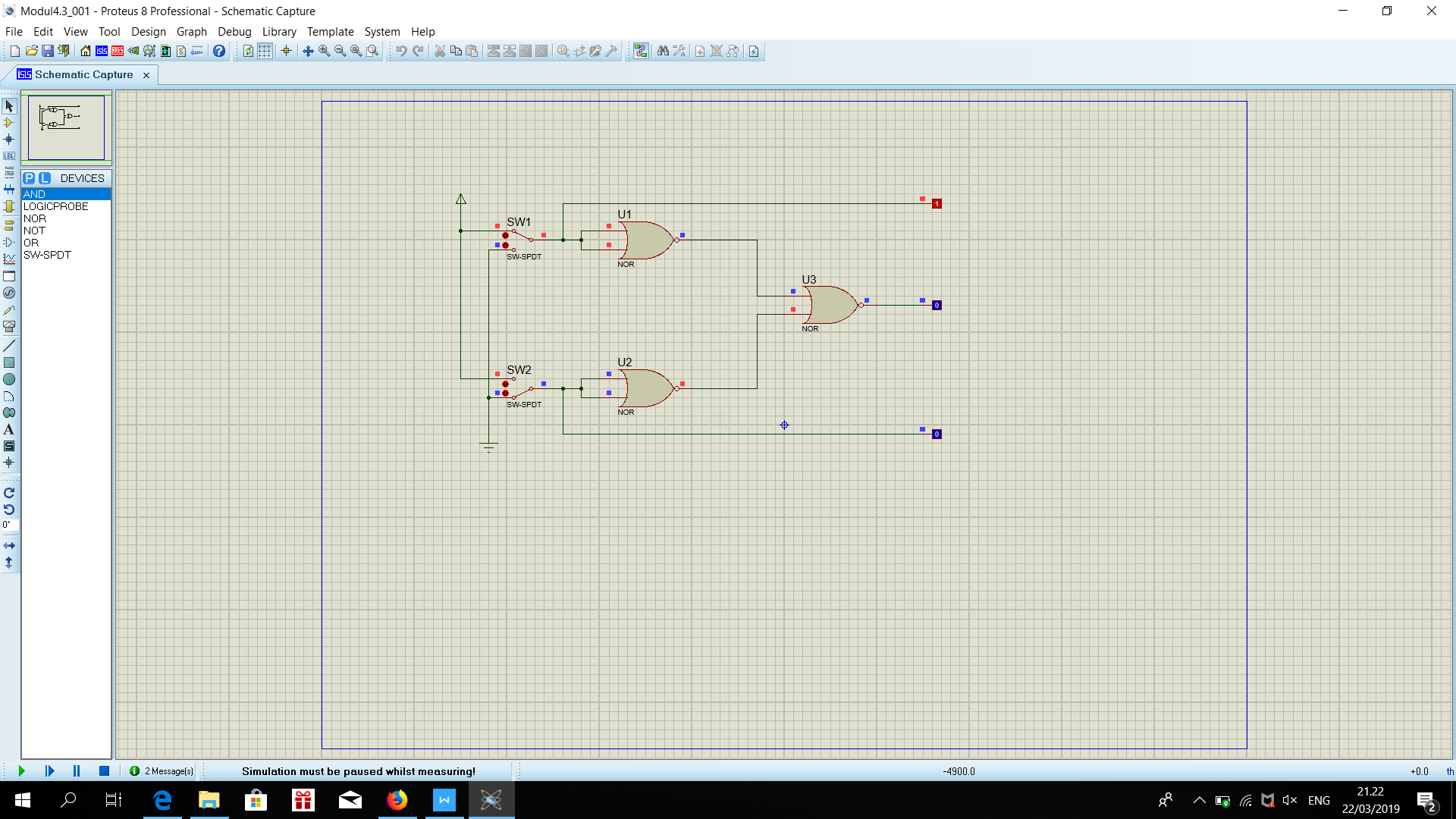
Gerbang NOR pada gambar 4.4 membentuk logika dari gerbang OR

Percobaan 3. Substitusi Pengganti Gerbang Logika

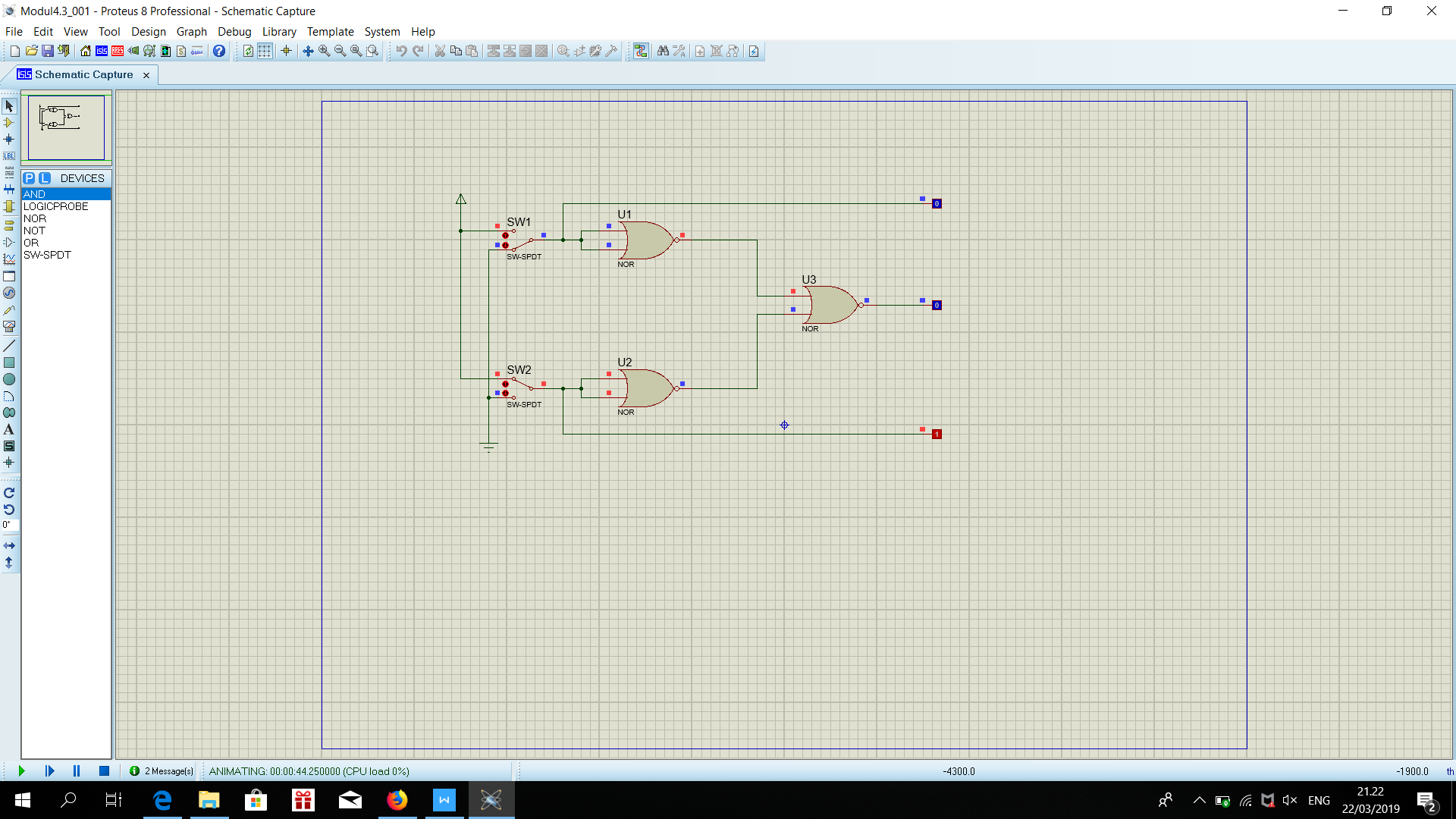
SW 1 = 0 dan SW 2 = 0



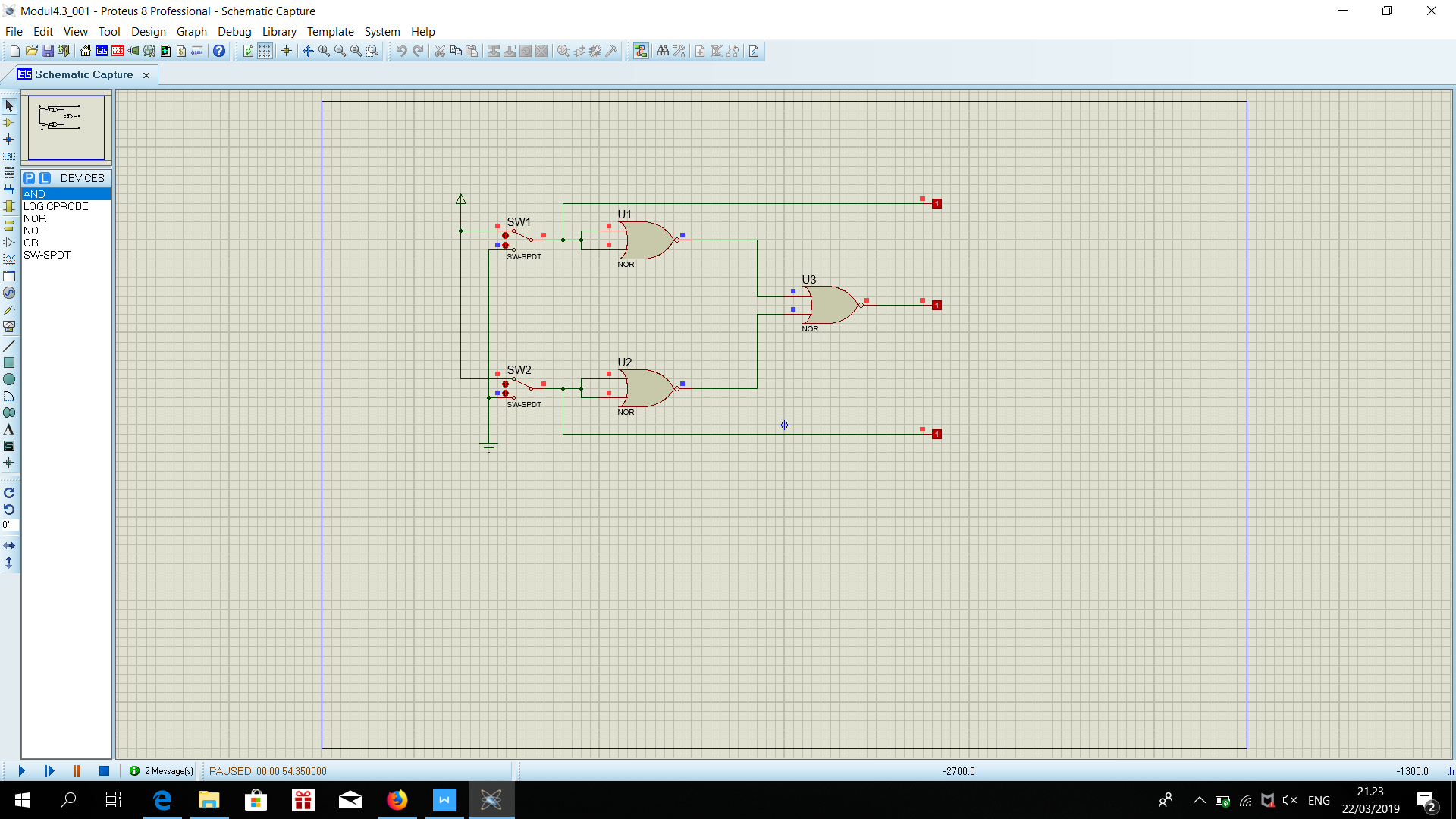
SW 1 = 1 dan SW 2 = 0



SW 1 = 0 dan SW 2 = 1



SW 1 = 1 dan SW 2 = 1



Tabel Kebenaran

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SW 1 | SW 2 | L1 | L2 | L3 |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 | 0 |
| 0 | 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 | 1 |

Diagram Waktu

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 1 | 0 | 1 |
|  |  |
| 1 | |
| 0 | | | |
|  | | | |
|  | | | 1 |
| 0 | | |
|  | | |

L1 :

L2 :

L3 :

Fungsi Boolean :

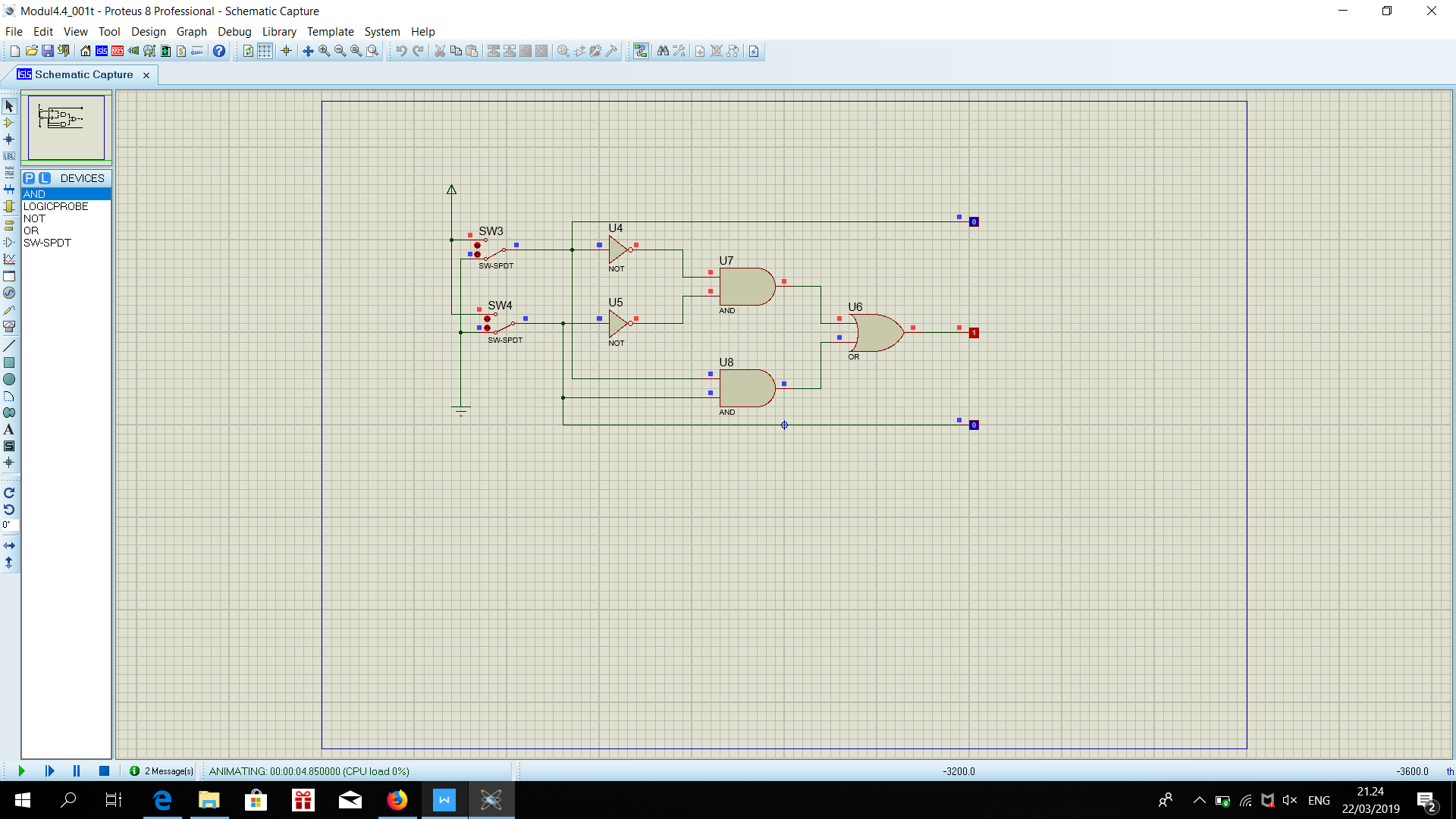
**L3 = L1 + L2 = L1.L2**

Kesimpulan :

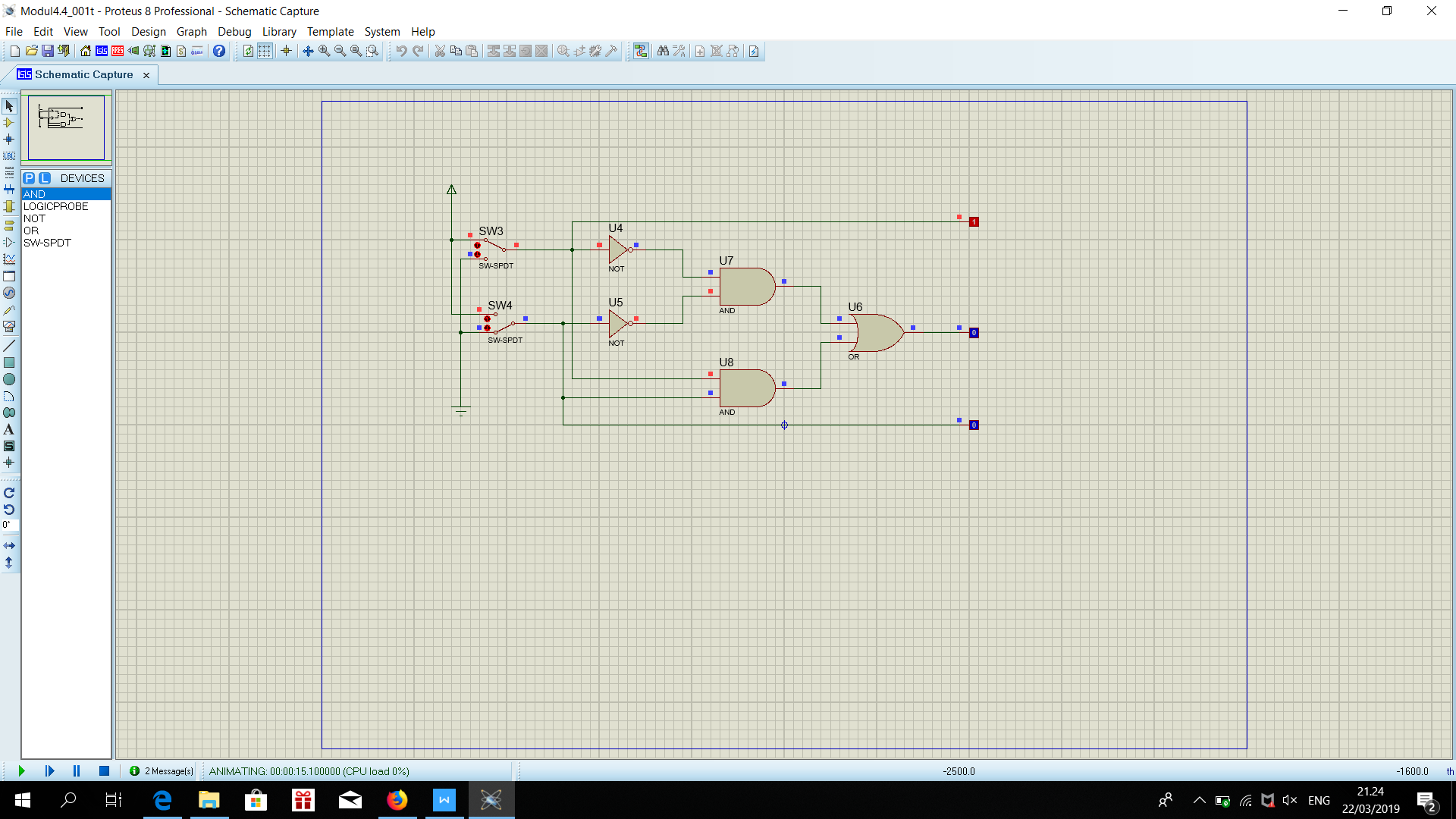
Gerbang NORpada gambar 4.5 membentuk logika dari gerbang AND

Percobaan 4. Substitusi Pengganti Gerbang Logika

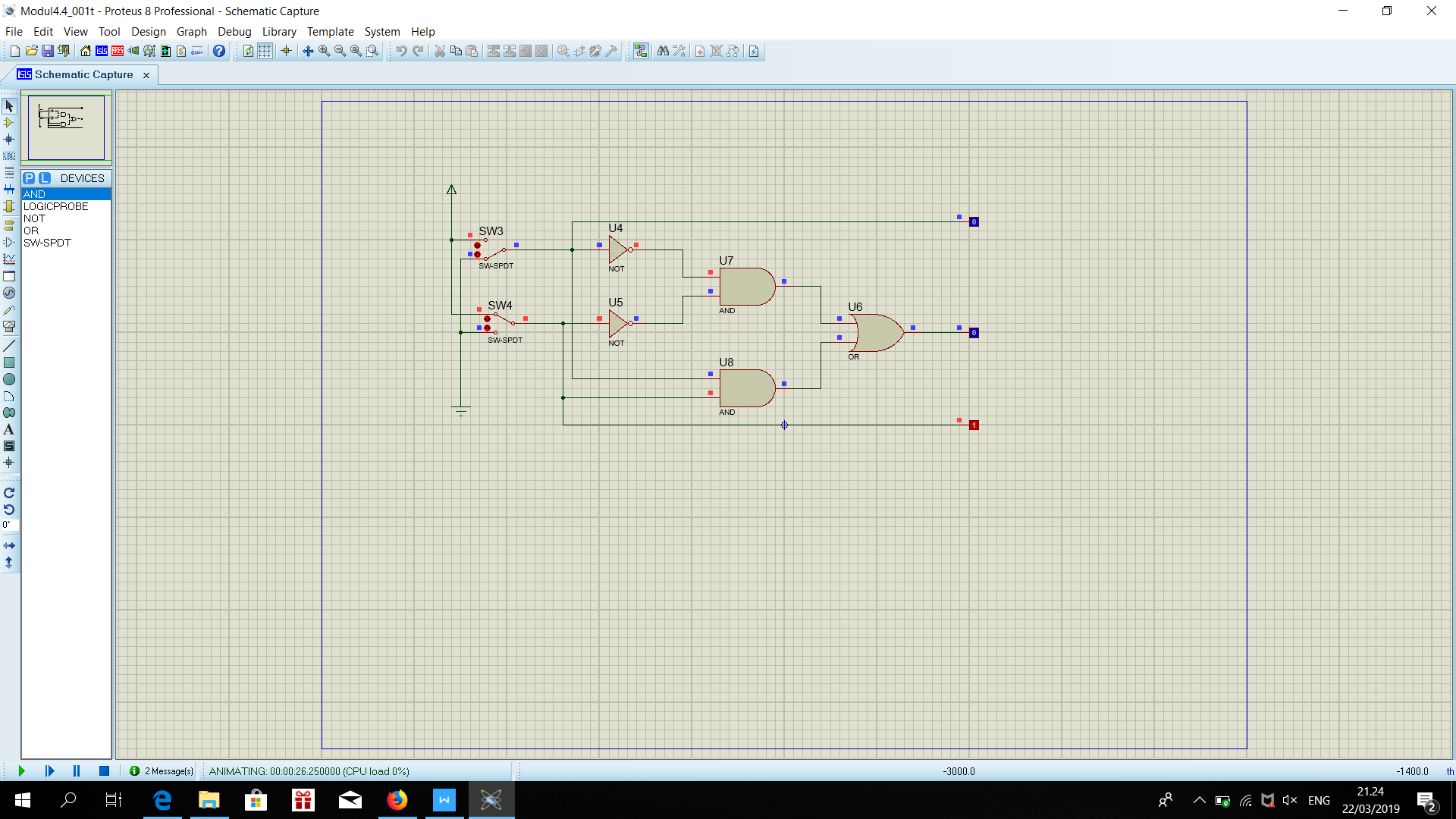
SW 1 = 0 dan SW 2 = 0



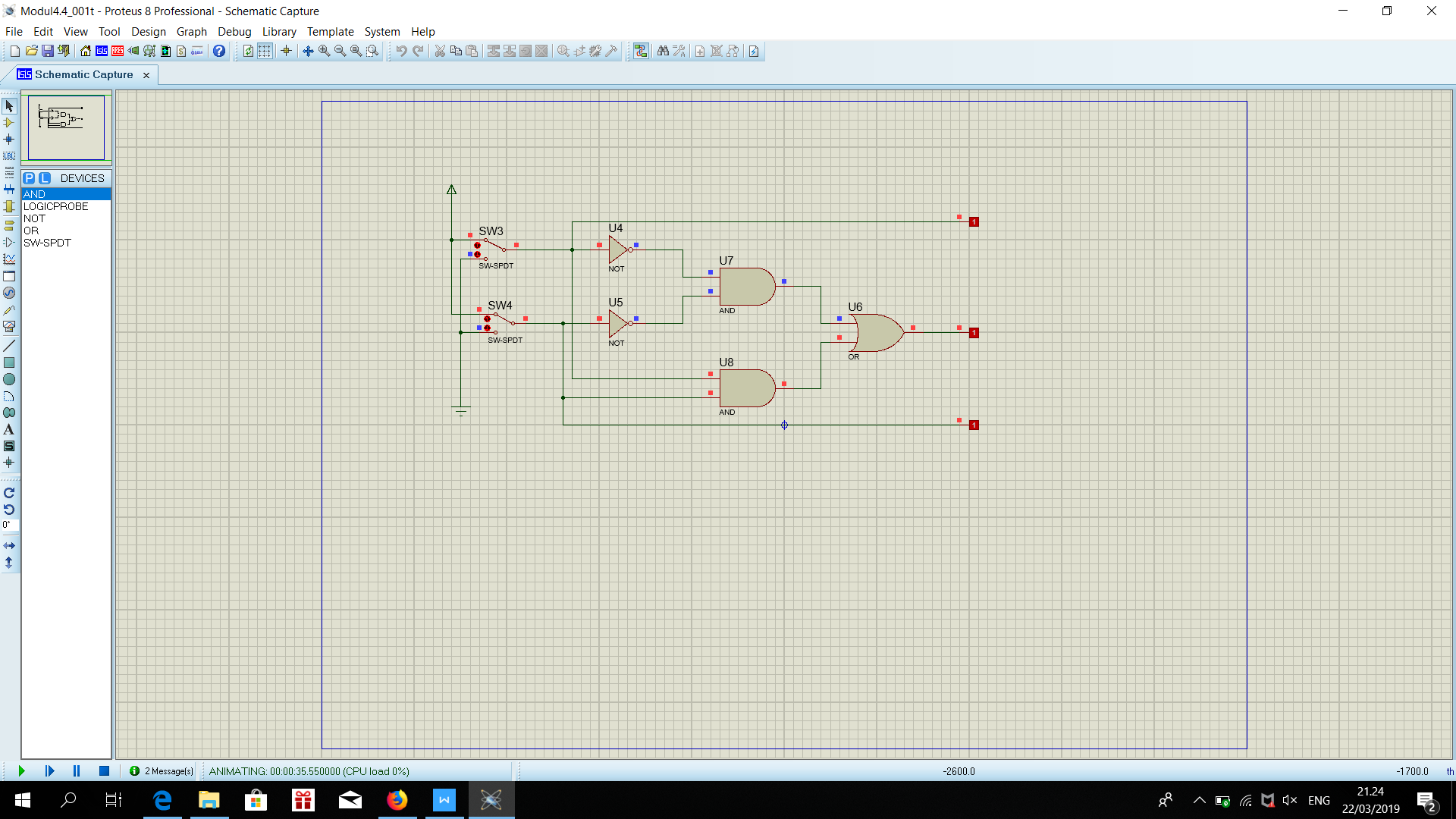
SW 1 = 1 dan SW 2 = 0



SW 1 = 0 dan SW 2 = 1



SW 1 = 1 dan SW 2 = 1



Tabel Kebenaran

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SW 1 | SW 2 | L1 | L2 | L3 |
| 0 | 0 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 | 0 |
| 0 | 1 | 0 | 1 | 0 |
| 1 | 1 | 1 | 1 | 1 |

Diagram Kebenaran

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 1 | 0 | 1 |
|  |  |
| 1 | |
| 0 | | | |
|  | | | |
|  | | | |
| 1 |  | | 1 |
| 0 | | |

L1 :

L2 :

L3 :

Fungsi Boolean :

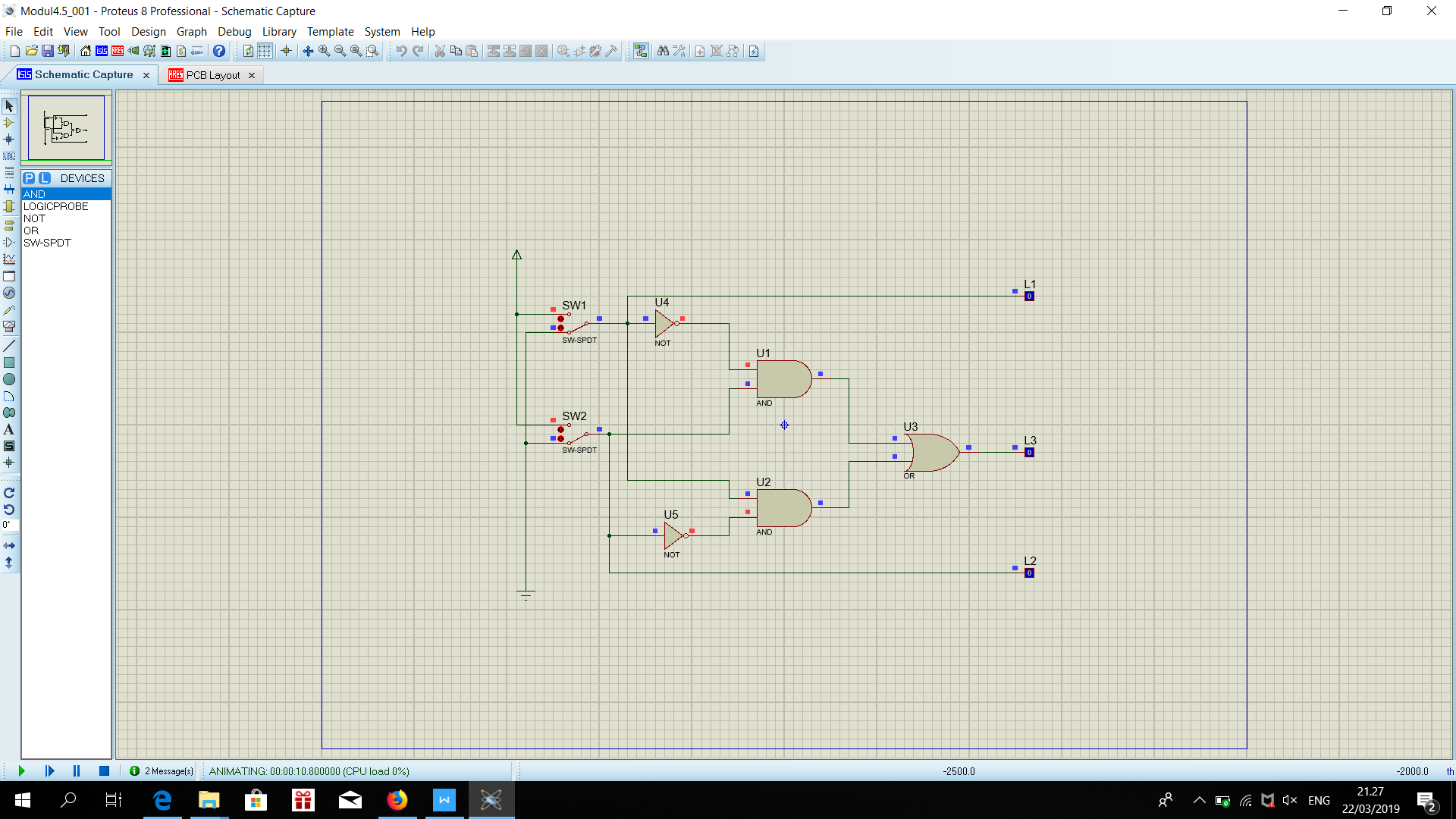
**L3 = L1L2 + L1L2 = L1 L2**

Kesimpulan :

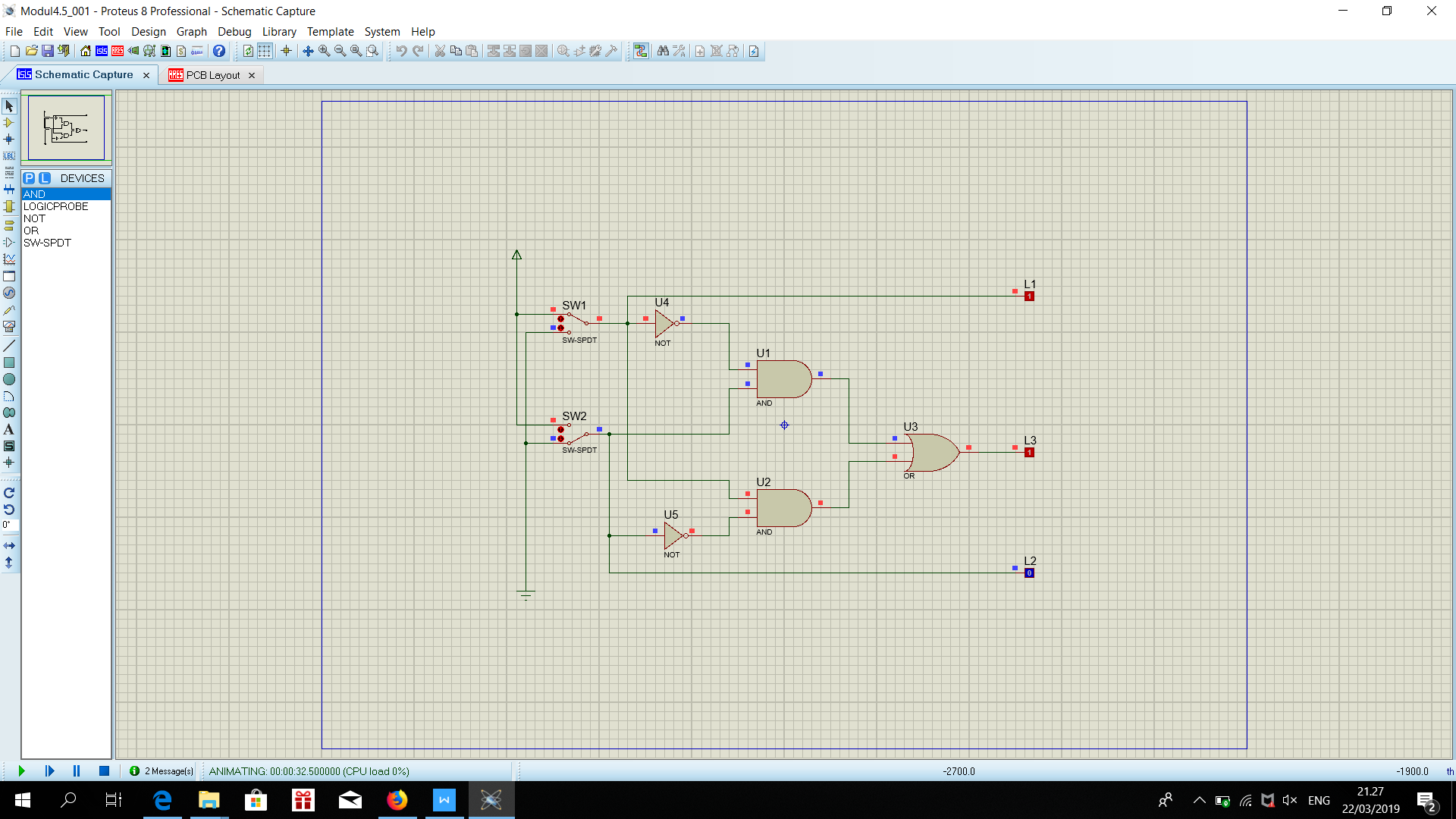
Kombinasi gerbang pada gambar 4.6 membentuk gerbang logika dari gerbang XNOR

Percobaan 5. Merancang fungsi Boolean ke dalam rangkaian

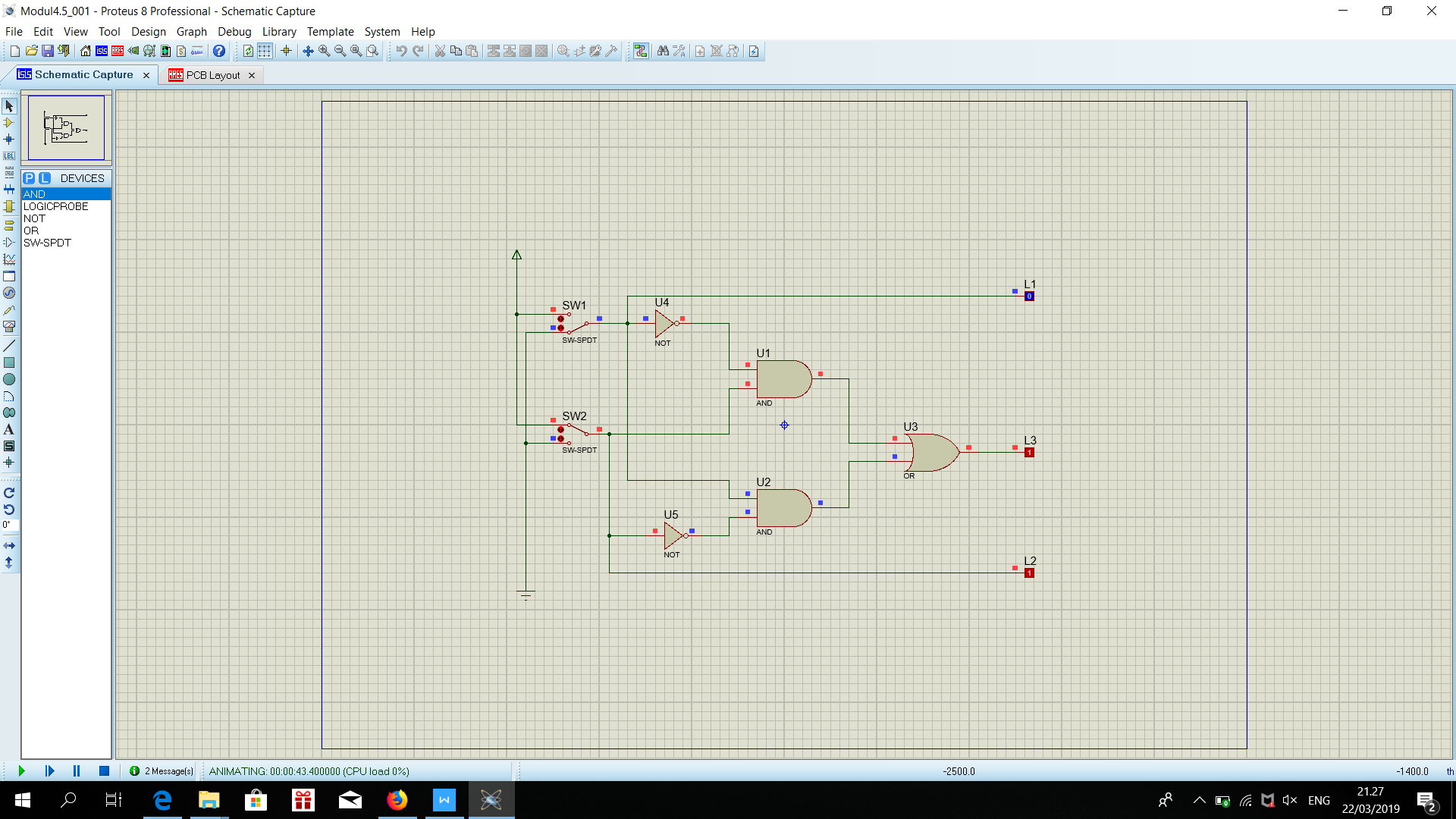
Sw 1 = 0 dan SW 2 = 0



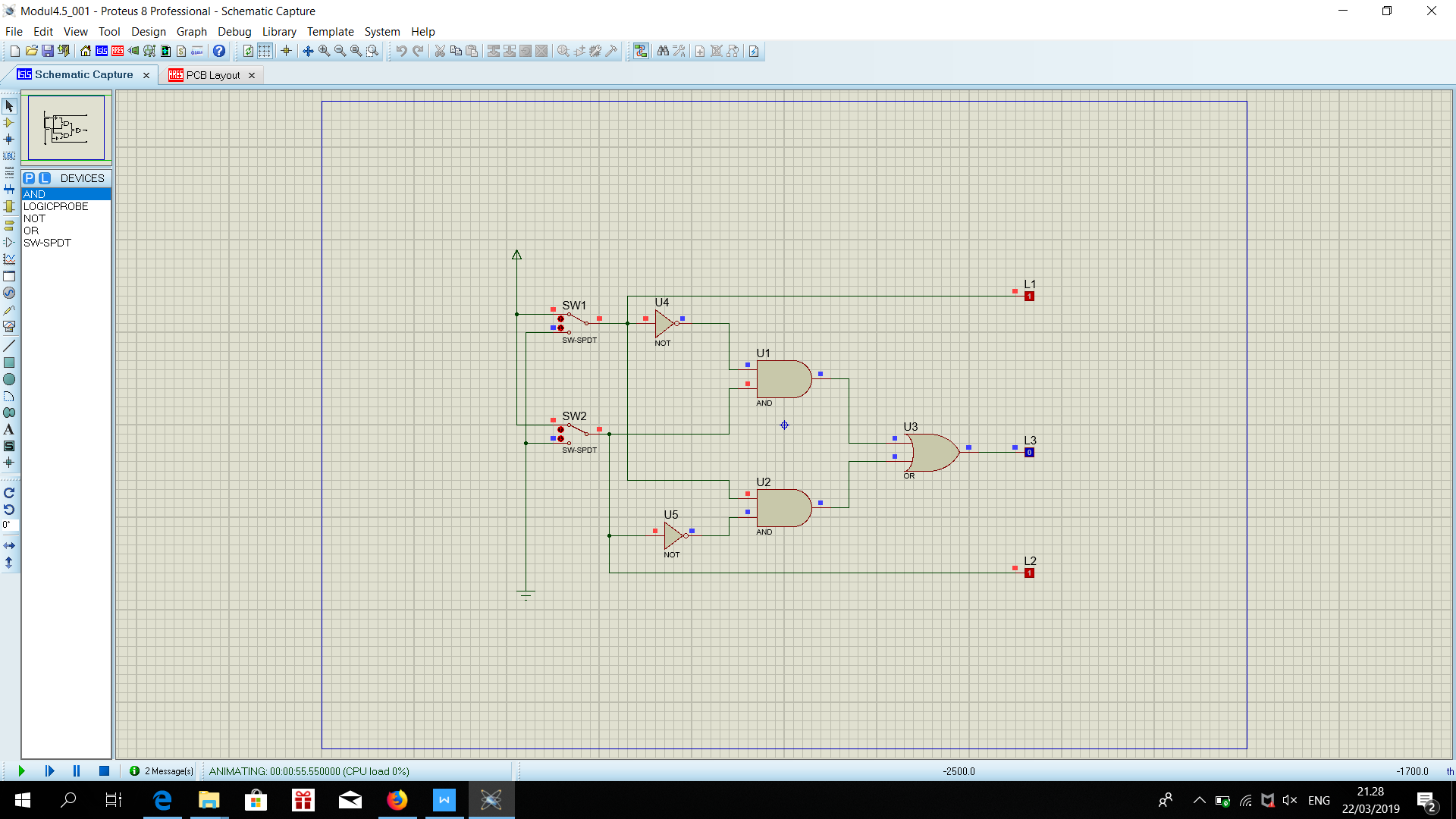
SW 1 = 1 dan SW 2 = 0



SW 1 = 0 dan SW 2 = 1



SW 1 = 1 dan SW 2 = 1



Tabel Kebenaran

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SW 1 | SW 2 | L1 | L2 | L3 |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 | 1 |
| 0 | 1 | 0 | 1 | 1 |
| 1 | 1 | 1 | 1 | 0 |

Diagram Waktu

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 1 | 0 | 1 |
|  |  |
| 1 | |
| 0 |  |  | |
| 1 |  |  |
| 0 | | 0 |

L1 :

L2 :

L3 :

Kesimpulan :

Kombinasi gerbang membentuk logika dari gerbang XOR