

## PROJECTX N° 017

# “BASIC LOGIC GATES”

## PRESENTATION



**Promoting school:**

Konya (Meram) Vocational and Technical Anatolian High School  
Konya, Turkey



## A. GENERAL DESCRIPTION

### Title of the ProjectX

**BASIC LOGIC GATES**

### Core area

GENERAL / KNOWLEDGE      **ELECTRONICS**

PARTICULAR / ACTIVITY:      **ASSEMBLY, MEASUREMENT, DESIGN**

### Promoting school

KONYA VOCATIONAL AND TECHNICAL ANATOLIAN HIGH SCHOOL

### Schools participants in the revision of the ProjectX

VALDORIO

### Reference to ECVET Credit System and EQF / NQF

ECVET	EQF	REFERENCE TO NATIONAL QUALIFICATIONS (NQF)						
		Spain	Finland	Romania	Portugal	UK	Turkey	France
2	2	2	2	2	2	2	2	2

### Learning Outcomes achieved (to be developed in the future related with ECVET credit system)

1. Understand binary number system
2. Understand basic logic gates symbol and truth table
3. Be able to apply simple circuits using basic logic gates

### Time that is necessary to do the ProjectX (in hours)

Theory:            8 hours  
Practice:         20 hours

### Link to real companies in your region (it is just informative)

1. NAME:TEKNOMIKS                      WORKPLACE: DIGITAL LABORATORY
2. NAME:                                      WORKPLACE:



## B. THEORY

### Objectives of the theoretical Knowledge

1. Binary number system
2. Basic Logic Gates (AND, OR, NOT, NAND, NOR, XOR and XNOR)
3. Simple Logic Circuit Design

### List of activities

1. Learning truth tables of logic gates
2. Design simple circuits with logic gates
3. Evaluation of theoretical Knowledge

## C. PRACTICE

### Brief description of the Practice

Obtaining of the truth tables of logic gates on the experiment set  
Application of simple logic circuits with logic gates from truth table or function

### Steps or activities to be performed by the student

- First: Understanding and interpreting of logic gates' symbols  
Second: Measuring the outputs of each gates by changing their inputs  
Third: Examining the operation of the logic gates and comparing expected outputs to the truth tables  
Fourth: Constructing logic circuit which function was given



**D. DETAILED DESCRIPTION OF LEARNING OUTCOMES.**

<b>Learning Outcome:</b>	<b>Understand binary number system</b>
<b>Knowledge</b>	
-	The student knows binary number system and Boolean algebra
<b>Skills</b>	
-	The student is able to convert decimal to binary and binary to decimal number systems
<b>Competences</b>	
-	The student is responsible to know number system and Boolean algebra operations

<b>Learning Outcome:</b>	<b>Understand basic logic gates symbol and truth table</b>
<b>Knowledge</b>	
-	The student knows the symbols and truth tables of logic gates
<b>Skills</b>	
-	The student is able to know input and output of logic gates
<b>Competences</b>	
-	The student is responsible to explain symbol and truth table when gate's name is asked

<b>Learning Outcome:</b>	<b>Be able to apply simple circuit using basic logic gates</b>
<b>Knowledge</b>	
-	The student knows to obtain logic circuit from logic function and the logic function from logic gate
<b>Skills</b>	
-	The students able to connect logic gates according to the logic circuit
<b>Competences</b>	
-	The student is responsible to compare the output of login function with the output of experiment

