Sekolah Pendidikan Profesional dan Pendidikan Berterusan (UTMSPACE)

PROGRAM KEJURUTERAAN ELEKTRIK
PUSAT PENGAJIAN DIPLOMA (PPD), SPACE
UNIVERSITI TEKNOLOGI MALAYSIA
KUALA LUMPUR

MECHATRONICS ENGINEERING LABORATORY

(DDWE 3711)

INDUSTRIAL AUTOMATION

EXPERIMENT 2

CONVEYOR SYSTEM (WITH SENSOR) MODULE

Group members	**1.**
	2.
	3.
	4.
	5.
Lecturer	**:**
Date	**:**

No.	PO	CO	Student Marks	Marks
1	PO2	CO2		30%
2	PO3	CO4		20%
3	PO4	CO2		50%
Total Marks				/100%

OBJECTIVES: i. To understand the components in the system and their characteristics.
ii. To make electrical and pneumatic connections based on sensors diagram, I/O list and pneumatic diagram.
iii. To understand the PLC program and the system workflow
iv. To understand the integration using difference system input and output

PARTS LIST:

PART	QUANTITY
CYLINDER	7
ROTARY	1
VACUUM INJECTOR	1
VACUUM S/W	1
F/R UNIT	1
REED S/W	9
MICRO SENSOR	2
PROXIMITY SENSOR	2
P/B SENSOR	2
VACUUM PAD	1
END VALVE	1
S, VALVE	9
DC MOTOR	1

CONTROL PANEL PARTS	QUANTITY
IND LAMP	3
PUSH BUTTON	2
EMG S/W	1
RELAY	2
POWER SUPPLY	1
PLC(FP1 C40)	1

INSTRUCTIONS:

1. Table 1 shows the position of cylinders provided in attachment 2. You are instructed to write down the pneumatic circuit according to Table 1.

   Example: CYLINDER 1 should be connected to the first 5/2way valve (Y0) and so on.

ACTUATOR	SOLENOID VALVE
Cylinder 1	Solenoid 1 (Y0)
Cylinder 2	
Cylinder 3	
Cylinder 4	
Cylinder 5	
Cylinder 6	
Rotary 1	
Suction cup / vacuum	

Table 1

2. Verify the pneumatic tube connections between solenoid valves and actuators. With the aid of solenoid valves diagram (attachment 4), fill up the solenoid labels into Table 3. You are advised not to push the 'manual override' buttons on the solenoid valves to test the system.

3. Study the sensor diagram (attachment 3). With referring to I/O list in page 3, fill up the labels as you see on the system into Table 2.

4. Connections from valves to actuators have been made. Understand the drawing (Attachment 1 to 4). With referring to Table 2 and 3, cable up the connecting panel to the PLC panel. You are advised to use the colored wires accordingly. For example, use the blue wire to connect the input signal (X labels on PLC panel) to sensors label. (S labels on connecting panel**). {PO3, CO4}**

/ 20

5. Inform your supervisor before you on the power supply

6. Insert all the 'cover' pieces into the feeding shaft. Push PB button. If the system fails to work successfully, you have to do troubleshooting procedures.

7. Explain about the process in module 2. {PO4, CO2}

/ 20

8. Write down the BND and BLD of the PLC program.

{ PO4, CO2}

/ 30

MODULE 2
I/O LIST

INPUT LIST:

INPUT NO.	REMARKS	SYMBOL
X0	PUSH ER 2 OUT	
X1	LIFTER DOWN	
X2	LIFTER UP	
X3	PARTS OUT	
X4	PART IN	
X5	SLIDER OUT	
X6	SLIDER IN	
X7	PUSHER 1 OUT	
X8	ROTARY OUT	
X9	ROTARY IN	
XA	Z CY IN	
XB	PART CONFIRM	
XC	PUSH BUTTON (START)	
XD	STOPPER	
XF	VACUUM S/W	

Table 2

{ PO2, CO2}

/ 20

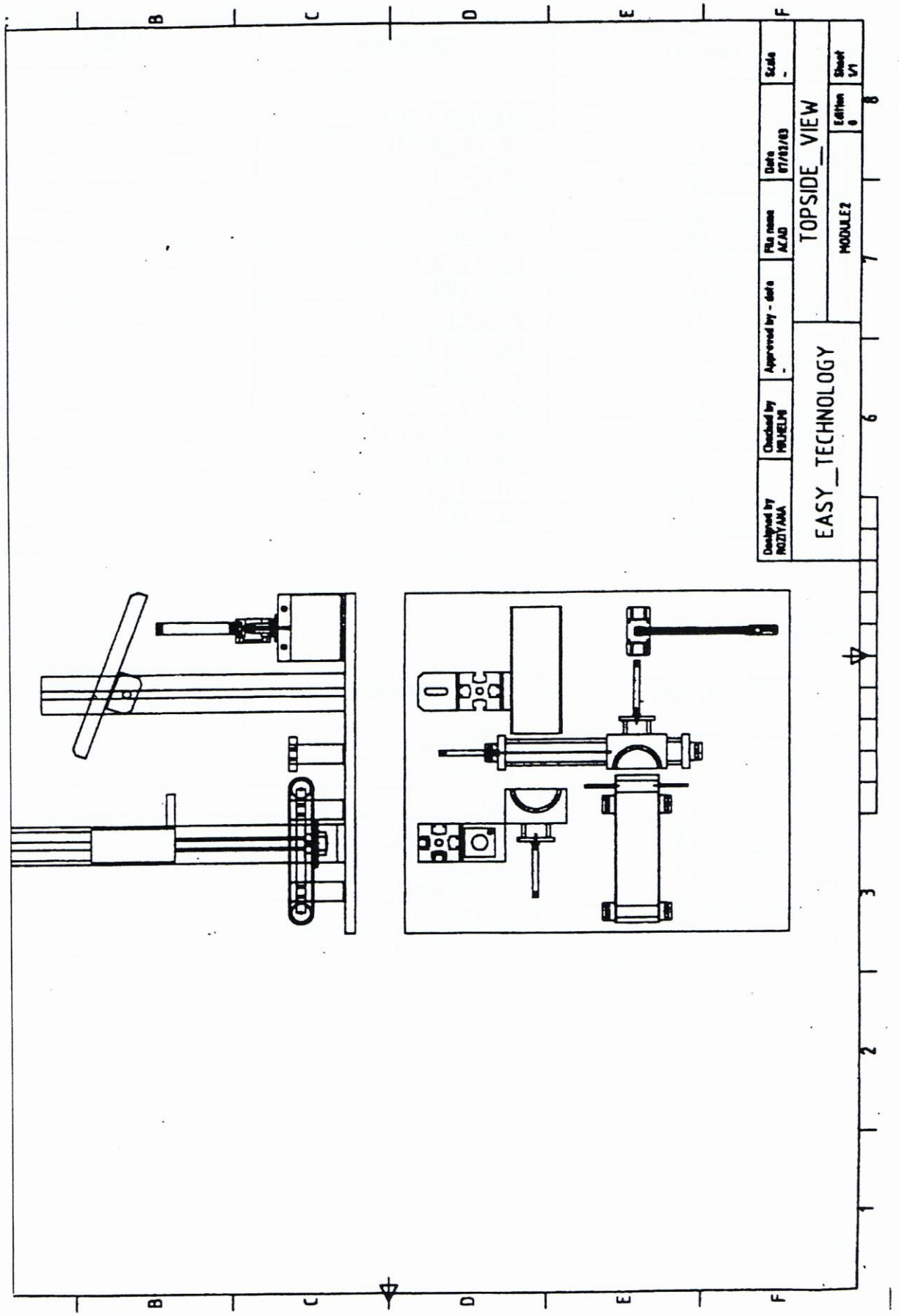
OUT PUT LIST:

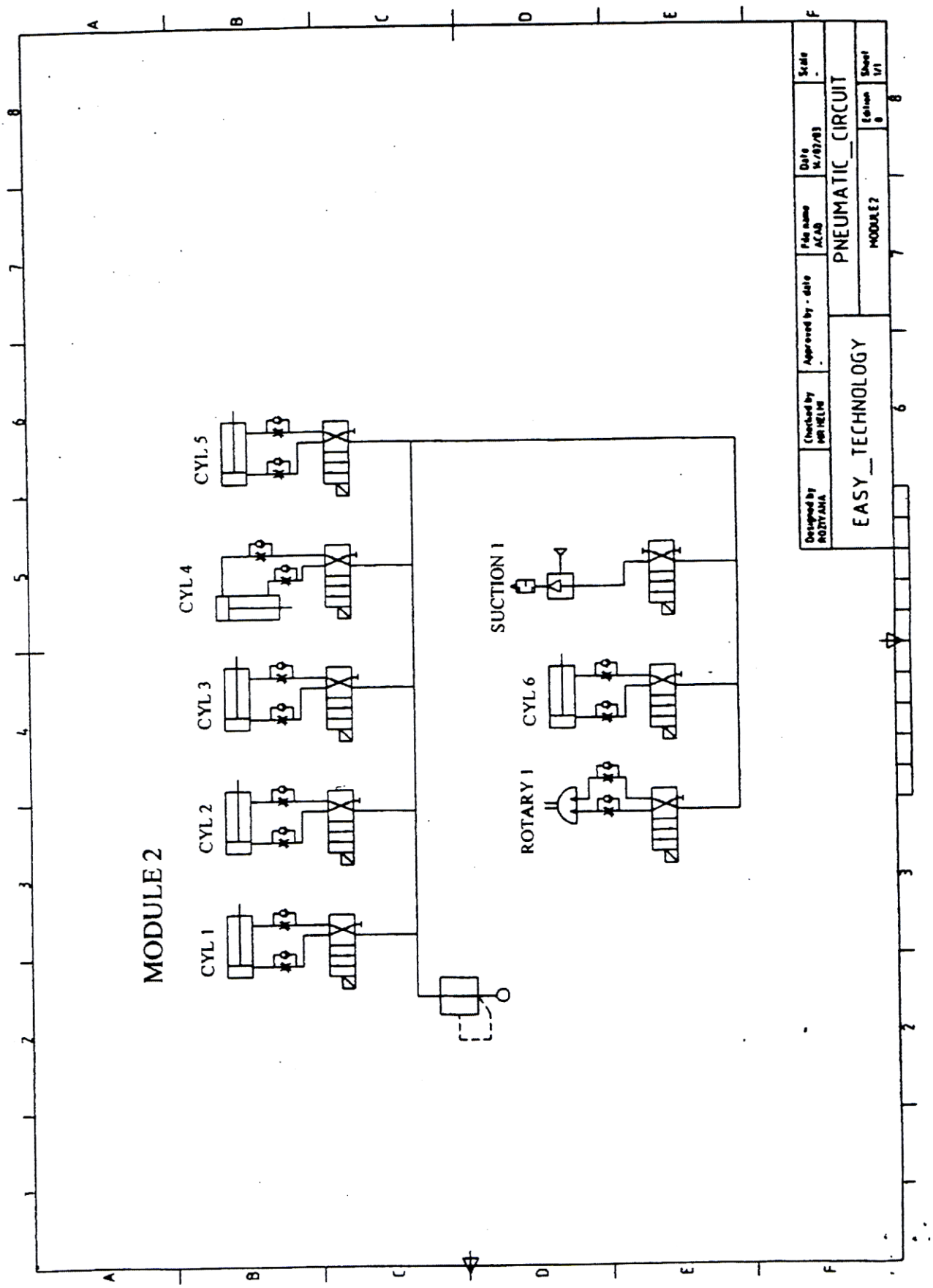
OUT NO.	REMARKS	SYMBOL
Y0	STOPPER	
Y1	ROTARY	
Y2	Z CY	
Y3	VACUUM	
Y4	SLIDER	
Y5	PUSHER 1N	
Y6	LIFTER	
Y7	PUSHER OUT	

Table 3

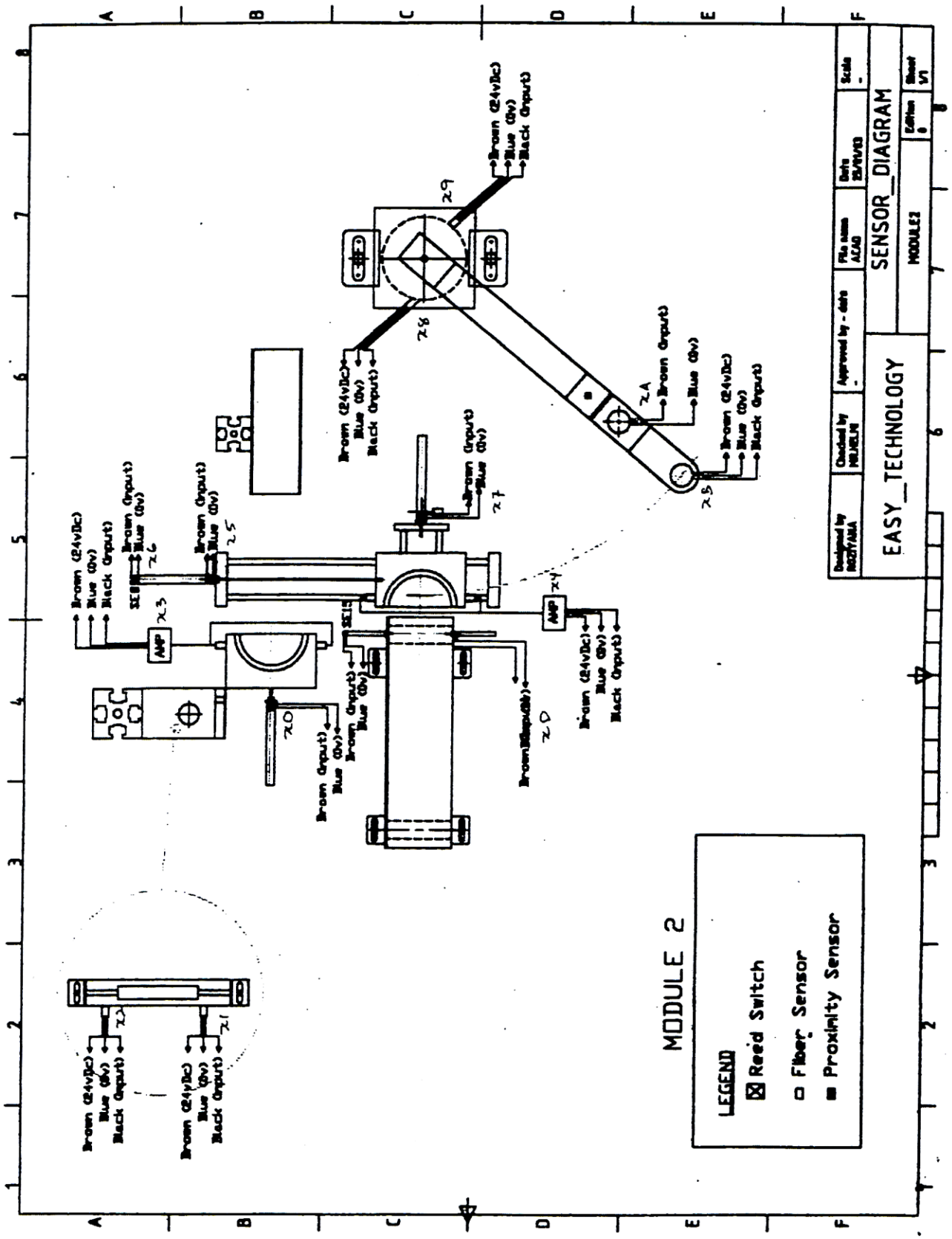
{ PO2, CO2}

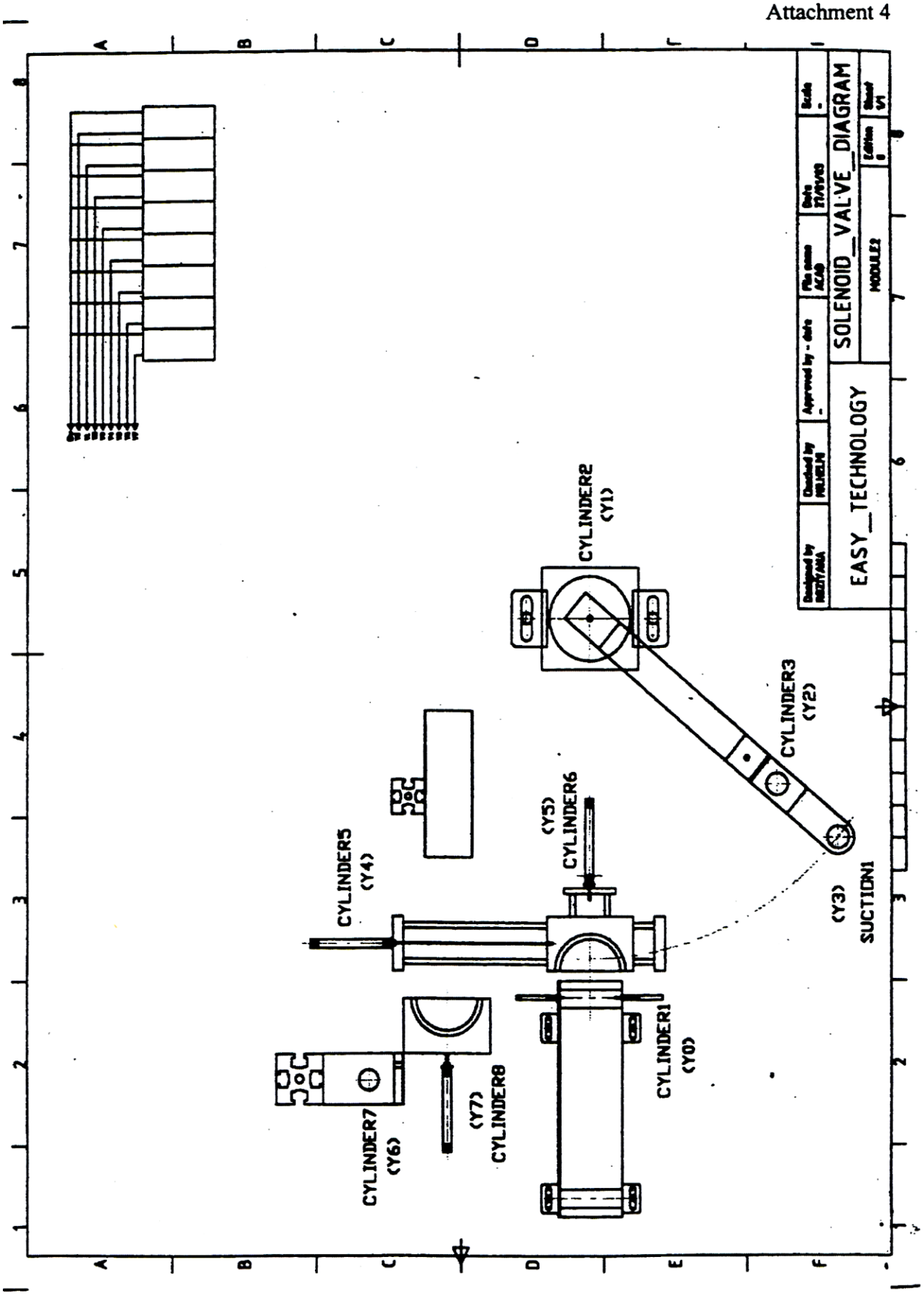
/ 10


Designed by ROZIYANA
Checked by HILMIELIN
Approved by - date -
File name ACAD
Date 07/03/03
Scale -
Sheet V1
Edition 0
MODULE2
TOPSIDE_VIEW
EASY_TECHNOLOGY


MODULE 2
CYL 1
CYL 2
CYL 3
CYL 4
CYL 5
CYL 6
ROTARY 1
SUCTION 1
EASY_TECHNOLOGY
PNEUMATIC_CIRCUIT
MODULE2

Attachment 3




EASY_TECHNOLOGY
SOLENOID_VALVE_DIAGRAM
CYLINDER2
(Y1)
CYLINDER3
(Y2)
(Y3)
SUCTION1
CYLINDER5
(Y4)
(Y5)
CYLINDER6
CYLINDER7
(Y6)
(Y7)
CYLINDER8
CYLINDER1
(Y0)