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1. 調査団員

岸本 博 機材調査 株式会社ケイディーテック 代表取締役

2. 調査日程

No.	月日	曜日	時間	岸本 博 (コンサルタント/機材調査)
1	2/25	日	AM	成田発
			PM	アンカラ着
2	2/26	月	AM	JICAトルコ事務所打合せ
			PM	国民教育省表敬・協議
3	2/27	火	AM	アンカラ校訪問・調査
			PM	移動(コンサルタント、通訳 アンカラ → イズミール)
4	2/28	水	AM	イズミール校および教員研修センター訪問・調査
			PM	
5	3/1	木	AM	イズミール校及び教員研修センター協議
			PM	
6	3/2	金	AM	同上
			PM	移動(コンサルタント、通訳 イズミール → アンカラ)
7	3/3	土	AM	資料整理
			PM	
8	3/4	日	AM	同上
			PM	移動(コンサルタント、通訳 アンカラ → コンヤ)
9	3/5	月	AM	コンヤ校訪問・調査
			PM	
10	3/6	火	AM	同上、コンヤ工業会議所訪問、民間企業調査
			PM	移動(コンサルタント、通訳 コンヤ → ブルサ)
11	3/7	水	AM	国民教育省ブルサ支局表敬、ブルサ校訪問・調査
			PM	移動(コンサルタント、通訳 ブルサ → コジャエリ)
12	3/8	木	AM	コジャエリ校訪問・調査
			PM	
13	3/9	金	AM	移動(コンサルタント、コジャエリ → イスタンブール → ガズィアンテップ)
			PM	
14	3/10	土	AM	資料整理
			PM	民間企業訪問・調査
15	3/11	日	AM	シャンルウルファ校訪問・調査
			PM	
16	3/12	月	AM	ガズィアンテップ校訪問・調査
			PM	
17	3/13	火	AM	移動(コンサルタント、ガズィアンテップ → イスタンブール → ワン
			PM	ワン校訪問・調査
18	3/14	水	AM	同上
			PM	移動(コンサルタント、ワン → イスタンブール → アンカラ)
19	3/15	木	AM	報告書作成
			PM	
20	3/16	金	AM	国民教育省報告
			PM	JICAトルコ事務所報告
21	3/17	土	AM	アンカラ発
			PM	
22	3/18	日	AM	成田着
			PM	

3. 主要面談者

国民教育省

Mr. Huseyin ACIR	国民教育省職業技術教育局 局長
Mr. Yusel YUKSEL	同 部長
Mr. Aydin GEYLAN	同 ゲブゼ支局長
Mr. Suleyman SISMAN	同 ガズィアンテップ支局長

教育機関等

Mr. Cengiz UNAL	アンカラ校 校長
Mr. Sati CALISKAN	イズミール校 校長
Mr. Muzaffer APAN	コンヤ校 校長
Mr. Gurol ERISMIS	ブルサ校 校長
Mr. Mehmetali TOKLUOGLU	コジャエリ校 校長
Mr. Abdulkadir KALYENCI	ガズィアンテップ校 校長
Mr. Abudulkadir ACAR	シャンルウルファ校 校長
Mr. Veysel AKDAS	ワン校 校長
Mr. Osman KOSE	教員研修センター 主任教員

民間企業等

Mr. Tahir BUYUKHELVACIGIL	コンヤ工業会議所 会頭
Mr. Seyfi SUNA	コンヤ欧州広報センター
Mr. Mehmet KULU	ZADE 社 製造企画部長 (コンヤ)
Mr. Halil AKTAS	MOPISAN 社 技師長 (コンヤ)
Mr. Vahit TURKYILMAZ	SEKEROEHLU 社 (コンヤ)

JICA トルコ事務所

水落 俊一	所 長
梅永 哲	次 長
山下 望	所 員
Ali Bekin	所 員

4. 技術移転分野要望リスト

SUBJECTS DETERMINED BY TURKISH COUNTERPARTS FOR TTC PROGRAM(1/2)

Subject Title	Subjects	Related Lecture	Related Module	Module No	Grade	Department
Motion Control	Conventional AC, DC Motor Control	Sequence Control	Controlling Asynchronous Motors	2,3	11	Mechatronics Industrial Control
Motion Control	Brushless DC Motor	Control Systems	Servo Mechanism	4	12	Industrial Control
Motion Control	induction motors	Control Systems	Servo Mechanism	4	12	Industrial Control
Motion Control	AC and DC Servo Motors with Speed and Position Control	Control Systems	Servo Drivers	5	12	Industrial Control
Control System Design	PID	Control Systems	PID Control	3	12	Industrial Control
Control System Design	Process Control	Control Systems	New			Industrial Control
Computer Control	USB Port	Computer Control	New	-	11	Mechatronics Industrial Control
Computer Control	Writing Driver for Windows XP/Linux	Computer Control	New	-	11	Mechatronics Industrial Control
Computer Control	Control via Internet	Computer Control	New	-	11	Mechatronics Industrial Control
Board-Level Control	Embedded Systems	Industrial Systems	Embedded System1, 2	2,3	12	Industrial Control
Board-Level Control	microprocessors (Z80, Intel 8086)	Industrial Systems	New		12	Industrial Control
Board-Level Control	PLD (Programmable Logic Devices)	Industrial Systems	New		12	Industrial Control
Data Acquisition	Data Acquisition Cards	Scada Systems Control Systems	Closed Loop Control	2,3	12	Mechatronics Industrial Control
Data Transmission	RF(Radio Frequency), One-Wire Data Transmission	Factory Automation	New		12	Mechatronics Industrial Control
Data Transmission	Fiber Optics	Factory Automation	New		12	Mechatronics Industrial Control
Sensing of Quantities	Temperatures, Flow Rate, using strain gauge, etc.)	Sensing and Signal Processing	Measuring pressure, temperature, water level	1,3,5,6	11	Industrial Control
CAD-CAM	Catia, SolidCAM	Automatic Production	Automatic Production1, 2, 3	1, 2, 3	12	Mechatronics
CAM	Rapid Prototyping	Automatic Production	New		12	Mechatronics
Control Methods	Discreet-Time Control	Control Systems	New		12	Industrial Control
Control Methods	Real Time Control	Control Systems	New		12	Industrial Control
Design	Designing and Controlling Industrial Robots	Automatic Production	New		12	Mechatronics
Board-Level Control	Image and Signal Processing	Digital Signal Processing (Selective)	New		12	Industrial Control
Computer Control	Image(by WebCam, etc.) and Signal Processing	Digital Signal Processing (Selective)	New		12	Industrial Control
Design	Industrial Product Design	Industrial Systems	New		12	Industrial Control
Automation	Material Handling & Storage System	Automatic Production	New		12	Mechatronics
Automation	Flexible Manufacturing Cells	Automatic Production	Automatic Production 4,5	4.5	12	Mechatronics
Database Management	Relational, DBMS	Internet Programming Industrial Systems	Internet Programming 3, 4 Industrial Systems 5	3,4, 5	12	Mechatronics Industrial Control

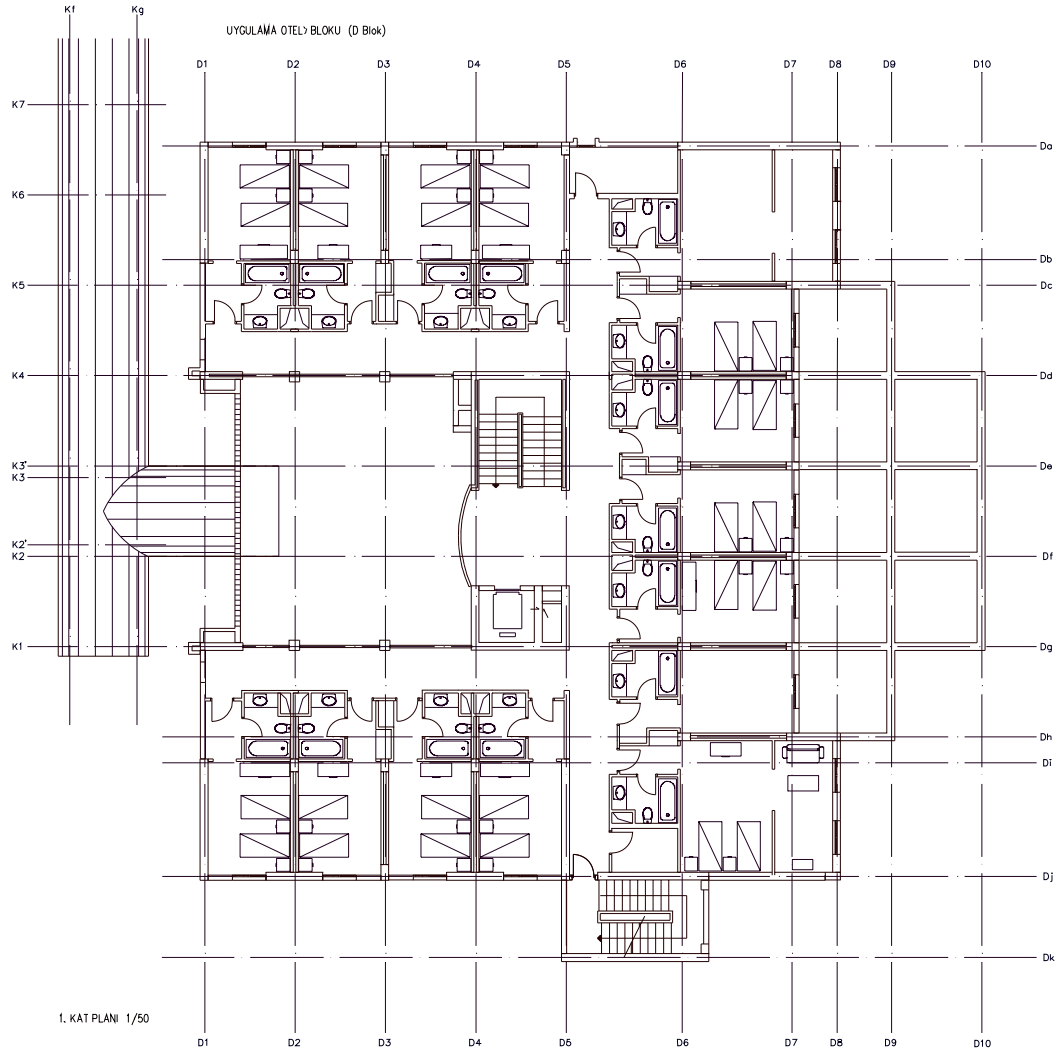
SUBJECTS DETERMINED BY TURKISH COUNTERPARTS FOR TTC PROGRAM(1/2)

Subject Title	Subjects	Related Lecture	Related Module	Module No	Grade	Department
Information Network	Industrial Bus Systems(Modbus, Profibus, Canbus)	Scada Systems Control Systems	Industrial Systems 2	2	12	Mechatronics Industrial Control
Control Architecture	Distributed Control Systems and SCADA	Scada Systems Industrial Systems	Scada Systems 1,2 Industrial Systems 5	4, 5, 5	12	Mechatronics Industrial Control
Advanced Control Topics	Adaptive/Predictive Controllers	Industrial Systems	New		12	Industrial Control
Advanced Control Topics	Fuzzy Logic for Mechanical Systems	Industrial Systems	New		12	Industrial Control
Design	Designing Automation Systems (Home, Hospital)	Automation	New		12	Mechatronics Industrial Control
Design	Project Design Matrix(PDM)	System Analysis	New			
Servers	The tests of DNS, Proxy, SSH, Web, FTP, mail and samba servers in internet environment	Network servers and security	Internet security, Remote access Mail server Internet applications		12	Industrial Control
Board-Level Control	Microprocessors (Z80, Atmel)	Industrial Systems	New		12	Industrial Control
Sequance Control	Advanced PLC Programing, via using VBA applications	Sequence Control	System design by PLC		11 12	Mechatronics Industrial Control
VPN(virtual private network)	Installing VPN	Network servers and security	Internet security, Remote access Mail server Internet applications		12	Industrial Control
Cominication	Serial(i-butons), Parellel and USB connections	Microcontroller	Micro controller 4	4	11	Mechatronics Industrial Control
Robot Arms	Construction and using of robot arms	Conmputer Control	Conmputer Control 4-5	4 5	12	Industrial Control
Line tracer and Sumo robot	Advanced making sumo and line tracer	Microcontroller	Micro controller 2	2	11	Mechatronics Industrial Control

5. 収集資料リスト

番号	資料名	形態	発行機関	発行年	備考
1	COKESEN ELEKTRONİK URUN KATALOGU	製本	COKESEN ELEKTRONİK	2005	機材カタログ (英文、トルコ文)
2	YILDRIM ELEKTRONİK 2005 URUN KATALOGU	製本	YILDRIM ELEKTRONİK	2005	機材カタログ (トルコ文)
3	YILDRIM ELEKTRONİK 2005 URUN KATALOGU	CD-R	YILDRIM ELEKTRONİK	2005	機材カタログ (トルコ文)
4	PLC PROGRAMLAMA KURSU	コピー製本	ADIL KARAAGAC ANADOLU TEKNİK LİSESİ	2006	短期研修用テキスト (コンヤ校)
5	Window 2003 Server Ve Domain Kontrol Sistem Kurulumu	コピー製本	”	”	”
6	Temel Bilgisayar Aqlari	コピー製本	”	”	”
7	PIC16F84 MIKROISLEMCİSİNİ ASSEMBLY DİLİ İLE	コピー製本	”	”	”
8	COSİMİR Factory Operating Instructions	コピー	FESTO	2005	FA システム取扱説明書

6. 教員研修センター(TTC) 2F (宿泊室フロア) 平面図



7. 訪問記録

(1) アンカラ校

アンカラ校は、人口約 320 万人のトルコの首都であるアンカラにあり、1978 年の設立、生徒数約 1,700 人、教職員数 138 人、ATL、AML および EML を併設しており、機械、電気・電子、化学、コンピュータ、建築、木工、金属加工、自動制御技術の各科からなる。

(2) イズミール校

トルコのほぼ西端に位置するイズミールは、人口約 225 万人、イスタンブール、アンカラに次ぐトルコ第 3 の都市であり、エーゲ海地方最大の工業都市でもある。イズミール校は 1998 年の設立であり、生徒数約 670 人、教職員数 47 人、ATL に自動制御技術科、EML にプラスチック加工技術科を持つ。2006 年 3 月には、同校と同じ敷地内に教員研修センターが建設された。同校の自動制御技術科は、日本の技術協力プロジェクト「自動制御技術改善計画」のパイロット・プロジェクト校として、2001 年から 2006 年にかけて機材供与、技術移転が実施された。また、プラスチック加工技術科は、トルコ国内に 4 校しかないプラスチック加工品の製造技術を教育する学校である。

(3) コンヤ校

アンカラから約 250km の南に位置するコンヤは、先史時代からといわれる古い歴史を持つ都市である。コンヤ校は 1999 年の設立、生徒数 531 人、教職員数 48 人で、電気・電子、化学、コンピュータ、自動制御技術の各科から成る。同校はイズミール校と同様に、パイロット・プロジェクト校として日本による機材供与、技術移転が実施された。また、同校では 2003 年より、全国の技術系高校の教員を対象に短期研修プログラムを実施しており、1 回の受講者数は約 140 人との事である。

約 30 年前まで農業で成り立っていたコンヤは、その後工業化への転換を図り、現在では、周囲の工業地帯に自動車関連産業、機械産業等で約 1,000 社の企業が操業しており、同校卒業生の多くはこれら企業に就職している。

(4) ブルサ校

オスマン帝国の最初の首都となったブルサは、繊維産業、食品加工などが盛んであり、またトルコ国内の自動車産業の中心地として、フィアットヤルノーの工場がある工業都市でもある。ブルサ校は 1992 年の設立、14 万 km² の広大な敷地内に約 2.8 万 m² の建物群を有する。生徒総数 3,250 人、教職員数 185 人で、ATL、AML、TL、EML が併設されており、機械、コンピュータ、電気・電子、服飾デザイン、縫製、自動制御技術の各科から成る。また、同校はコンヤ校と同様、全国の技術系高校の教員を対象とした短期研修プログラムを実施している。周辺のブルサ工業地帯には自動車、紡績関連企業等、約 270 の企業が操業しており、同校卒業生の有力な就職先となっている。

(5) コジャエリ校

コジャエリはイスタンブールに近く、マルマラ海に面した商工業都市である。同校は 1975 年設立、生徒総数 2,350 人、教職員数 163 人で、ATL、AML、TL、EML が併設されており、機械、コンピュータ、電気・電子、木工、金属加工、自動制御技術、バイオ・メディカルの各科から成る。同校は敷地、建物規模から生徒数約 1,000 人程度の収容力であるが、現在 2,000 人を超える生徒が在籍しており、一部の科では二部授業も行われている。同校では毎年、在学時に工場実習

で行った企業に、卒業後就職する例が多いとのことである。

(6) ガズィアンテップ校

ガズィアンテップは、シリアとの国境に近いトルコ南部に位置する人口約 86 万人の商工業都市であり、市内にはガズィアンテップ城をはじめ歴史的建造物が多く、観光都市でもある。また、周辺の工業地域には繊維関連産業、プラスチック加工産業が多い。同校は 1943 年設立とトルコの技術教育系高校の中でも最も古い歴史を持つ学校の一つである。1943 年の開校当初は機械科、金属加工科、木工科の 3 科で始まったが、その後、ATL、AML、TL、EML が併設され、電気・電子、コンピュータ、産業電気、自動制御技術等の各科が開設された。同校の生徒数は 1,724 人、教職員数 133 人であり、特筆すべきは、学校として ISO-9000 を取得している。

(7) シャンルウルファ校

シャンルウルファはガズィアンテップの東、車両で約 2 時間の距離にある。紀元前 3000 年頃から開けたという都市は観光の街でもある。同校は 1944 年の設立であり、ガズィアンテップ校と同様に古い歴史を持っている。同校には、ATL、AML、TL、EML が併設されており、生徒総数 2,350 人、教職員数 163 人で、コンピュータ、機械、電気・電子、金属加工、自動車、木工、内燃機関、建設、建築製図、冷蔵・空調機械技術の各科から成る。現校長は 1988 年以来約 20 年在職している。

同校では本年末の自動制御技術科用機材の設置にあわせ、旧機械実習室の大規模な改装工事を実施中である。

(8) ワン校

ワンはトルコの最東端に位置し、イランとの国境に接する都市である。ワンの市街は塩水湖であるワン湖の東側にあり、紀元前 9 世紀から開けた街といわれる。同校は、1945 年設立、生徒数約 1,100 人、教職員数 65 人、ATL および EML があり、電気・電子、機械、木工、金属加工、冷蔵・空調機械技術、コンピュータ、自動車、自動制御技術の各科から構成されている。また、他の多くの学校と同様に金属加工科と木工科が協同で学校用の机、椅子を校内で製作し、収入を施設整備費等の学校経費の一部にあてている。

地元にはプラスチック加工、食肉加工、精糖工場等があるが、大規模な企業は少なく、各学校の卒業生の多くはイスタンブール、アンカラ、イズミール等の都会地に就職先を求めているのが現状とのことである。しかしながらここ数年、イランその他の外国資本が投入され、ワン校の位置する市中心部には近代的なビルの建設が急速に進んでいる。

(9) ZADE 社 (コンヤ)

トルコでも有数の食用油製造会社であり、10 数種類の食用油を製造している。工場は 2005 年に操業を開始したばかりであり、最新の設備・システムを導入している。特に、SCADA システムを利用した製造工程全般を遠隔管理・制御できるシステムはベルギー製であり、操作担当者は運用開始に先立ち、ベルギー人技術者から約 3 カ月のトレーニングを受けたとのことである。

(10) SEKEROEHLU 社 (コンヤ)

プラスチック製品製造会社であり、プラスチック製家庭用品を製造している。工場内には 20 台の CNC 射出成型器があり、約 20 品目を製造しているとのことである。また、同社では金型も自社で製作しており、技術力の高さを伺わせる。

(11) MOPISAN 社 (コンヤ)

ピストン、ピストンリング、クランクシャフト、シリンダ・ライナ、コネクティング・ロッド

等の自動車エンジン部品製造会社であり、製品は、オペル、フォルクス・ワーゲン等の欧州自動車メーカー向けが殆どである。工場では、製品梱包等の一部のコンベア・ラインに自動化を取り入れている。



日本をはじめ、欧米各国の外注部品に対する精度要求は極めて高く、同社製品の99%が欧州メーカー向けであることは、同社の技術力の高さを示している。


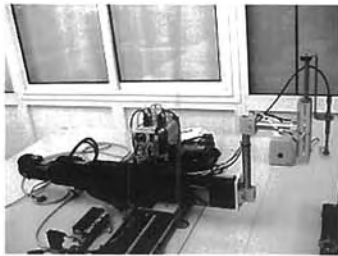
(12) TEYMUL TEKSTIL 社 (ガズィアンテップ)



紡績会社であり、製品梱包ラインにイタリア製の全自動システムを導入している。これはコンベア投入部に製品を投入すると、計量～梱包～ラベル貼付までを自動で行うものであり、PLC およびロード・セル、フォト・センサー等の各種センサーを利用したシステムである。

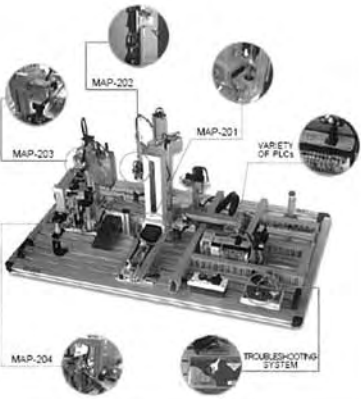
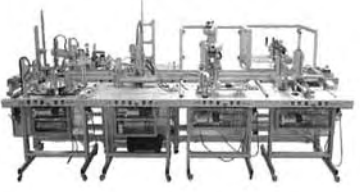
Mechatronics Lab.



No.	Equipment	Specifications	Q'ty	Picture	S No.	Related Modul	Related TTC lecture
1	Lifter Training Set	3 Stored Training Set for Lifter Training	4		24	Digital Signal Processing	Digital Signal Processing
2	Graphical Process Terminal		10		9	SEQUENCE CONTROL	Graphic Operational Terminal
3	ROBOTIC ARM WITH 6 AXIS AND ITS UNIT		1		10	Factory Automation	Factory Automation
4	WEIGHT-PRESSURE CONTROL TEST SET		1		19	Measuring strength, weight and pressure	SENSORS AND SIGNAL PROCESSING
5	FLOW CONTROL TEST SET		1		19	Measuring Flow	SENSORS AND SIGNAL PROCESSING
6	ASYNCHRONOUS MOTOR FREQUENCY CONVERTOR		1		9	SEQUENCE CONTROL	Asynchronous Motor Command Technics
7	Industrial Networks Training Set		1		22	Industrial Bus Systems	INDUSTRIAL SYSTEMS
8	INDUSTRIAL MOTOR AND CONTROL TECHNIQUE TRAINING SET		1		10	Factory Automation	Factory Automation
9	SENSOR TRAINING SET : FORCE AND PRESSURE SENSING		1		19	Measuring strength, weight and pressure	SENSORS AND SIGNAL PROCESSING
10	Computer Desk		21		—	—	—
11	Computer Chair		21		—	—	—
12	Automation Test Sets		1		11	Automatic Manufacture	Automatic Manufacture
13	Microsoft Office 2002		21		—	Common use	Common use
14	Microsoft Windows XP Pro.		21		—	Common use	Common use
15	Cabinet	Wooden cabinet with two sections, lower section with cover and locked upper section	2		—	Common use	Common use
16	Cabinet	Steel, Full Length locked	1		—	Common use	Common use

No.	Equipment	Specifications	Q'ty	Picture	S No.	Related Modul	Related TTC lecture
17	COMPUTER	Intel Pentium4 3.0GHz 800MHz FSB, 512MB DDR2 533 MHz, 100 GB (SATA), 7200 Rpm, DVD Writer, two serial ports,one parallel port, 17" LCD Monitor	11		8	Control With Computer	Control With Computer
18	BASIC PNOMATIK EDUCATION SET	Pnomatic Experiment Table and Panel	2		7	Pneumatic and Hydraulic	Pneumatic and Hydraulic
19	ELEKTROPNEUMATIC EDUCATION SET	Education Set for Elektropnomatic - PLC Applications	1		7	Pneumatic and Hydraulic	Pneumatic and Hydraulic



No.	Equipment	Specifications	Qty		S No.	Related Modul	Related TTC lecture
20	Hydraulic Set	Basic hydraulic, electrohydraulic. Both in one set	1		7	Pneumatic and Hydraulic	Pneumatic and Hydraulic
21	AC SERVO MOTOR MOUNTED ON A MECHANICAL SYSTEM	RS-232 / RS-422 / RS-485 communication Position Control Speed Control Tork Control Absolute/Incremental Position Control	1		12	SCADA systems	TTC Lecture didn't come



No.	Equipment	Specifications	Q'ty	Picture	S No.	Related Modul	Related TTC lecture
22	PROCESS CONTROL SET	It simulates a drink producing plant and includes the necessary technologies used in automated processes(electropneumatic, sensors, PLC, etc)			23	Control systems	TTC Lecture didn't come
23	INDUSTRIAL BUS EDUCATION SET	It teaches the industrial bus protocol(Modbus) between PLC of Panasonic and IO Card based on remote access.	1		22	Industrial Systems	Industrial Systems
24	AC MOTOR EXPERIMENT SET	Control with buton Electrical buton locked Starting star-delta	2	Experiment set will be built by us	23,10	Control systems- Factory Automation	Control systems- Factory Automation
25	ELEVATOR AND TRAFFIC LAMP EXPERIMENT KIT		1		9	Sequence Control	Sequence Control




No.	Equipment	Specifications	Q'ty	Picture	S No.	Related Modul	Related TTC lecture
26	Handling System Set	<p>This model includes four manipulator , based on a concept of a mini-cell assembly. Parts are:MAP-201: Parts Feeder With A Faulty Parts Detector And Ejector MAP-202: Two Shaft Feeder With Vacuum Fixation MAP-203: Rotating Vertical Manipulator With Interior Holding Collet MAP-204: Rotary, Linear, Horizontal Manipulator With Exterior Holding Collet</p>			10	Factory Automation	Factory Automation
27	FMS System	<p>The FMS system is designed in such a way the user may study the different technologies within the field of automation in a practical context by getting to grips with both the functions and applications of the different components.</p>			10	Factory Automation	Factory Automation

No.	Equipment	Specifications	Q'ty	Picture	S No.	Related Modul	Related TTC lecture
28	Piston Compressor	Working Pressure:8-115 bar Dimensions: 93x39x75 Motor Power: 1 kW Volume: 50 litres			10	Factory Automation	Factory Automation
29	Automatic Filling and Package Machine	Weight: 550 kg Supply Voltage:380V AC, 50Hz, 3 Phase	1		10	Factory Automation	Factory Automation
30	COMPUTER TABLE		6		—	Common use	Common use
31	COMPUTER CHAIR		6		—	Common use	Common use
32	CHAIRS		20		—	Common use	Common use
33	WORKING TABLE		6		—	Common use	Common use
34	MICROSOFT OFFICE 2002	licenced	6		—	Common use	Common use
35	MICROSOFT WINDOWS XP	licenced	6		—	Common use	Common use
36	CABINET	Wooden	1		—	Common use	Common use
37	CABINET	Steel	1		—	Common use	Common use

CAD/CAM Lab.





NO	Equipment	Specifications	Q'ty	Picture	S No.	Related module	Related TTC lecture
1	Computer	1 GB RAM Pentium IV 3.0 GHz microprocessor 80 GB Harddisk, 19 inch TFT monitor	20+1		11	Automatic Manufacture	Automatic Manufacture
2	Laser Printer	25 pages per minute 250 MHz RISC microprocessor 1200 x 1200 dpi resolution 32 MB SDRAM Standard A ₃ compatible	1		11	Automatic Manufacture	Automatic Manufacture
3	Computer Desk		20+1			Common use	Common use
4	Plotter	Print Speed: 2 min/page Resolution: 1200 x 1200 dpi Paper Handling: Up to Roll (44 in) Memory: 64 MB Size A0 paper	1		11	Automatic Manufacture	Automatic Manufacture
5	projector	1,500 Ansi Lumen, SVGA 800*600, 2,000:1 Kontrast,	1			Common use	Common use
6	Switch hub	24 ports	1			Common use	Common use
7	CAD(Solidworks)		20+1		11	Automatic Manufacture	Automatic Manufacture
8	CAD(Catia including CAM module)		20+1		11	Automatic Manufacture	Automatic Manufacture
9	CAM(SolidCAM)		1		11	Automatic Manufacture	Automatic Manufacture
10	Windows XP operating system		20+1		11	Automatic Manufacture	Automatic Manufacture
11	Microsoft Office 2002		20+1		11	Automatic Manufacture	Automatic Manufacture






NO	Equipment	Specifications	Q'ty	Picture	S No.	Related module	Related TTC lecture
12	CNC Milling Machine	Travel X:500 mm Y:400 mm Z: 300 mm Spindle speed range 100-8000 min ⁻¹ Mass of machine 2500kg	1		11	Automatic Manufacture	Automatic Manufacture
13	CNC Lathe Machine	Max turning diameter 410 mm Max. Turning length 290 mm X axis travel 235 mm Z axis travel 310 mm Spindle speed range 45-4500 min ⁻¹	1		11	Automatic Manufacture	Automatic Manufacture



NO	Equipment	Specifications	Q'ty	Picture	S No.	Related module	Related TTC lecture
14	CNC Control Training Set	Fanuc AC servo motor <ul style="list-style-type: none"> • Stall Tork 1-400Nm • Max Speed 1200-4000m⁻¹ AC spindle motor <ul style="list-style-type: none"> • Continuous Output 0.55- 0.6kW Servo Amplifier <ul style="list-style-type: none"> • Servo Amplifier 12-360A 	1		11	Automatic Manufacture	Automatic Manufacture
15	Rapid prototyping machine	3D Printing	1		11	Automatic Manufacture	Automatic Manufacture
16	Computer Armchair	Wood Frame Swivel-Tilt Mechanism with Tension Control	21		—	Common use	Common use
17	Cabinet	Steel, half-length lock	2		—	Common use	Common use





Control Lab.





No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No.	Related module	Related TTC lecture
1	Data Switch	25 ports	2		—	Common use	Common use
2	CEBOX- Laptop Computer	P4	1		—	Common use	Common use
3	PC computer	P4 3.0 Ghz	20		16	BASIC COMPUTER PROGRAMMING	BASIC COMPUTER PROGRAMMING
4	PC computer	For teachers	1		16	Common use	Common use
5	DVD Camera	SONY	1		—	Common use	Common use
6	Computer Armchair	For computers	20		16	Common use	Common use
7	Computer Table	For students, P4 3.2GHz Cpu, 120GB HDD 17 inch monitor 1GB Ram16X DVD	20		16	Common use	Common use
8	Computer Table	For teacher P4 3.2GHz Cpu, 120GB HDD 17 inch monitor 1GB Ram16X DVD	1		16	Common use	Common use
9	Floor covering	PVC	1		—	Common use	Common use
10	BENQ-Projector		1		—	Common use	Common use
11	Interactive board		1		—	Common use	Common use
12	Power Supply	1500 VA	1		—	Common use	Common use
13	Multifunction Printer	printer, scanner, photocopier	1		—	Common use	Common use


No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
14	Function generator	a. Supply Voltage :220V, 50Hz b. Signal Output: Sinuzoidal-Triangle-Square Wave (TTL-CMOS), c. 1Hz-1MHz frequency setting, e. Power Supply 0-30V Symmetric adjusted /2A SMPS Short-circuit protected	5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
15	Digital Oscilloscope	60 MHz, 250 MS/s dijital osiloskop, LCD screen	3		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
16	Digital Multimeter	Standart	20		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
17	Analog Multimeter	Standart	10		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller




No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
18	AC/DC Pensameter	400A/1000A, 5Hz, 50Hz,500Hz,5kHz,50kHz,100kHz	4		2	Basic Industrial Application	Basic Industrial Application
19	Adjusted DC Power Supply	(24-0-24V 10A)	14		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
20	Adjusted AC power supply	(0 - 250V 10A)	14		2	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
21	Adjusted inductance box (1A)	VALUES :1μH....1Henry SENSITIVITY :± 5% USING STEPS X1μH :1μH – 9μH X10μH :10μH -90μH X100μH :100μH -900μH X1mH :1mH -9mH X10mH :10mH -90mH X100mH :100mH –900mH	4		2	Basic Industrial Application	Basic Industrial Application
22	Adjusted capacitance box (1A)	VALUES: 100pF....10μF 400VDC- 280VAC SENSITIVITY: ± 5% USING STEPS: X100pF : 100pF – 900pF X1nF : 1nF -9nF X10nF: 10nF -90nF X100nF: 100nF -900nF X1μF : 1μF -9μF VALUES:1 Ω ... 100 MΩ SENSITIVITY:± 1 %	4		2	Basic Industrial Application	Basic Industrial Application




No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
23	Adjusted resistance box (1A)	USING STEPS: X1R :2 W Max / 2 Volt Max X10R :2 W Max / 4.4 Volt Max X100R :2 W Max / 14 Volt Max X1K :1 W Max / 30 Volt Max X10K :1 W Max / 100 Volt Max X100K :1 W Max / 315 Volt Max X1M :1/2 W Max / 700 Volt Max X10M :1/2 W Max / 2200 Volt Max	4		2	Basic Industrial Application	Basic Industrial Application
24	Side Chisel (Little sized)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
25	Side chisel (middle size)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
26	Phillips screwdriver (middle sized)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
27	Pliers		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
28	Electronic Material Bag		100		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
29	Cable peeler (0,5-20,5 mm2)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
30	Long Nose Pliers (Little Sized)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
31	Long Nose Pliers (Middle Sized)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller




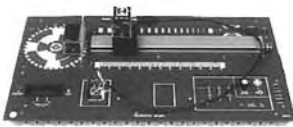
No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
32	Long Nose Pliers (Middle Sized)		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
33	Fine Screwdriver Set		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
34	Flat Screwdriver (middle sized)		10		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
35	Soldering Iron baseplate and Sponge		8		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
36	Electrical Soldering Vacuum Suction Pump		5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
37	Plate Cutting Guillotine		2		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
38	Soldering Iron (15W)		8		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller




No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
39	Allen Key Set		1		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
40	Open Ended Wrench (Little Sized)		1		2	Basic Industrial Application	Basic Industrial Application
41	Box Wrench Set (Little Sized)		1		2	Basic Industrial Application	Basic Industrial Application
42	Steel Rule (30 cm)		2		2	Basic Industrial Application	Basic Industrial Application
43	Plug crimper		4		5	Basic Computer Network	Basic Computer Network
44	Steel Material Cabinet		2		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller

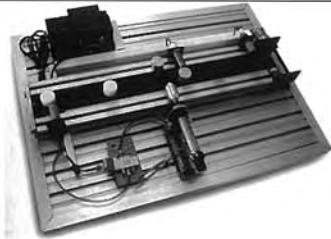


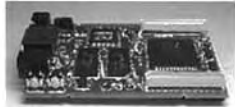
No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
45	Bench Drill (small Sized)		2		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
46	Drill Bit Set	0,8-12mm	5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
34	Mechanical Working Bench (Wooden)		6		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
47	Computer	ATX Case LGA 775 socketed, FSB 800 onboard Ethernet, sound maincard, Display sard with PCE 256 GDDR3 processor, 512 MB RAM DVD Combo , Pentium IV 280 GHz processor (LGA 775 Intel), 80 GB Harddisk 15 inch TFT monitor , Keyboard, Mouse 2 serial 1 parallel port	21		—	Common use	Common use
48	Computer Desk		21		—	Common use	Common use
49	Projector		1		—	Common use	Common use
50	Course Student Working Table	standart	5		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller




No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
51	Printed Circuit Preparing Set		1		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
52	Step Motor Test Set		2		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
53	DC Motor Test Set	0 – 200 V DC 0.55 -1.5 KW Power Control 0 – 10 V / 4 – 20 mA analog signal control Velocity / moment control	2		8,20	Microcontroller Computerized control	Microcontroller Computerized control
54	RF Control Test Set		5		20	Microcontroller	Microcontroller

No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
55	Basic Electronic Test Set	VOLTAGE :220 V Ac / 50 Hz \pm %10 TTL Simetric Power supply:-5, 0, +5 V DC / Elektronik Fuse / 1 A Simetric Power supply :-12, 0, +12 V DC / Adjustable Dc Power supply:Çıkış Gerilimi : 0-36 V Output Current : 0-1 A Display : 3½ LED AC Power supply:12, 0, 12 V AC / 1 A / Signal Generator	6		2	Basic Industrial Application	Basic Industrial Application
56	Pump Test Set		5		2	Basic Industrial Application	Basic Industrial Application
57	Industrial Electronic Test Set	Voltage 220 V AC / 50 Hz \pm %10 Power Supply -15, 0, +12V DC / DC Power Supply:3½ LED Akım ve Gerilim AC Power Supply 2, 0, 12V AC/ 1A/ Signal Generator :	6		2	Basic Industrial Application	Basic Industrial Application
58	Logic Test Set	Power Supply: 220V +5 V / 1,2 A / Elektronik Protection Internal Pulse Generator All Logic Gates Expreiments	6		2	Basic Industrial Application	Basic Industrial Application



No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
59	Digital Oscillator		1		14	Circuit Analysing	Circuit Analysing
60	Logic Analyser	32 Channel Logic analyser 32 (DC 25 MHz) or 8 (DC 100 MHz)	1		2,20	Basic Industrial Application Microcontroller	Basic Industrial Application Microcontroller
61	DC Servo Motor Test Set	Speed Control, PID control, braking	1		23	PID Control	CONTROL SYSTEMS
62	Adlink Data Collecting Card	PCI Bus	5		12	SCADA Systems	SCADA Systems
63	Digital I/O board for PCI	Input : 16 Output : 16 Work Voltage : Input: 12--24VDC Work Voltage : Output: 12--24VDC	5		8,12	Computerized control Scada systems	Computerized control Scada systems
64	Multi-channel analog input board for PCI	Input range :±10V, ±5V, ±2.5V, ±1.25V, 0-+10V, 0-+5V, 0-+2.5V, 0-+1.25V 64 inputs, and 32 differential inputs is possible	5		8,12	Computerized control Scada systems	Computerized control Scada systems
65	Microsoft Office 2002		21		—	Common use	Common use
66	Microsoft Windows XP Pro.		21		—	Common use	Common use
67	Visual Studio		21		8	Computerized control	Computerized control
68	Sensoric Experiment Set		2		8,12, 19	Computerized control Scada systems Sensor and signal recording	Computerized control Scada systems Sensor and signal recording



No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
							
69	BASIC RELAY CONTROL EXPERIMENT KIT	POWER SUPPLY: 220 AC/ 24 DC RELAY : 5A 250 V AC—5A 30 V DC 4 OPEN 4 CLOSED CONTACT TIMER RELAY COUNTER RELAY PUSH BUTTON BOX SIGNAL LAMP BOX LIMIT SWITCH CONNECTORS CONNECTION CABLES	21		9	Sequence control	Sequence control
70	PLC	64 K Program Memory, Communication : Ethernet (TCP/ UDP), RS232, 485, 422, High Speed Counters (8 points), Real time clockFile Register (32768 points), Data Register (8000), Index Register (16)+RS485 Convertor + Cable	21		9	Sequence control	Sequence control

No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
71	Conveyor-Belt Experiment Set	One piece PLC, one piece belt model, one piece photoelectric detector, one pieces inductor, capacitor detectors, one single acting cylinder	21		9	Sequence control	Sequence control
72	GRAPHICH PROCESS TERMINAL(TOUCH PANEL)	Measures:120x90mm, AC 220V	21		9	Sequence control	Sequence control
73	PLC Training Set	based on Siemens S7 300 PLC	11		9	Sequence control	Sequence control
74	Embedded System Training Card	Laser5 L-Card +16M LC+1616v02	20		22	Embedded System	Embedded System

No.	Equipment	Specifications	Q'ty	Imaginative Picture	S No	Related module	Related TTC lecture
75	Embedded System Training Card	L-CardA	20		22	Embedded System	Embedded System
76	Wireless LAN Card 11 MBPs	Buffalo WLI2-CF-S11	20		22	Embedded System	Embedded System
77	DSP TRAINING KIT	TEXAS INSTRUMENT DSK5416 DSP KIT TMS320VC5416	20		24	Digital Signal Processing	Digital Signal Processing






Mechanical Workshop





No.	Equipment	Specifications	Q'ty	Picture
1	Point type welding machine	Welding thickness 2+2 Max.Primer current 40 A Welding power 15 kVA	1	
2	Hydraulic Hacksaw	Round Cutting Capacity 170 mm Flat Cutting Capacity 200 x 120 mm Square Cutting Capacity 145 x 145 mm	1	
3	Table type drill		1	



No.	Equipment	Specifications	Q'ty	Picture
4	Universal type milling machine	Axle plane dimension 0-400 mm axle column dimension 175 mm axle tour 58-1800 rpm Machine Dimensions 1900x1720x1750 Automatic axis movement X,Y,Z	1	
5	Bending Roll machine	Working width x thickness (mm): 2000 x 3 Upper roller diameter (mm): 130 Bottom roller diameter (mm): 105	1	

Server Room




No.	Equipment	Specifications	Q'ty	Picture
1	Server Computer	Pentium 4	2	
2	Computer	For security cameras	1	
3	Switching hub	24 ports	2	
4	Floor covering		1	
5	Server Computer	Xeon 3.4 Ghz , dual processor support 6 GB ECC DDR SDRAM, tower case RAID support, Tape backup , SCSI harddisc interface , 2 x 200GB SCSI HDD, 52 x CDROM, DVD Writer+disc driver+ 15"LCD Monitor	1	
6	Server Computer	Xeon 3.4 Ghz , dual processor support 6 GB ECC DDR SDRAM, U1 Rackmount RAID support, Tape backup, SCSI harddisc interface , 200 GB HDD, 52 x CDROM,15"LCD Monitor+DVD Writer	1	
7	adsl modem	wireless support + 4 port	1	
8	adsl line	1024/512	1	
9	firewall	Firewall+DMZ	1	
10	layer3 switch	Web Based Management and Configuration possibilty, with 24 ports	2	
11	server cabinet	Vertical type, 4 fan module ,size of 800 x 1000 x 2100	1	
12	HUB	24 port switch -hub	2	
13	Wireless access point	100Mbps, 802.11b/g compatability	5	
14	Wireless receiver card	PCI	5	



No.	Equipment	Specifications	Q'ty	Picture
15	Wireless receiver card	PCMSCII	5	
16	Power Unit	1 kVA + 8 - 20 minutes	1	
17	Cabinet	Steel, full length as locked	1	
18	Server Cabinet	Tower type, 4 fan module dim:800X1200x21	1	
19	Wireless Acces point	100 Mbps, 802.11b/g support	5	
20	Wireless Receiver	PCI type wifi	5	
21	Wireless Reciever	USB type wifi	5	
22	Wireless Receiver	PCMSCI type wifi	2	

No.	Equipment	Specifications	Q'ty	Picture
19	Cabinet	Steal big size,key locking	1	
20	layer 3 switch	24 port web based management	2	
21	Firewall	Firewall+DMZ	1	
22	UPS	3kVA, 8-20 minute	1	
23	ADSL line	1024/512	1	

No.	Equipment	Specifications	Q'ty	Picture
24	Cable tester	Rj45, cat5 cable tester	2	 Two RJ45 cable testers are shown side-by-side. The one on the left is a larger, more complex device with a display screen and several buttons, labeled 'LAN TEST'. The one on the right is a smaller, simpler device with a single vertical slot for a cable and a few buttons.
25	Crimper	For rj45 (network)	2	 A network crimper is shown, which is a pair of pliers with a specialized head designed for crimping RJ45 network cables. It has two long handles and a central crimping mechanism.

Visual Communication Lab.




No.	Equipment	Specifications	Q'ty	Picture
1	Computer	Pentium IV 2.4 Ghz, 1 GB DDR RAM, tower case, 80GB SCSI HDD, 52 x CDROM, DVD Writer+disc driver+ 15" LCD Monitor	21	
2	Hub	24 ports	1	
3	Printer	Laser Printer	1	
4	Scanner	Flatbed, Max (dpi) 12800 dpi x 12800 dpi	1	
5	Power Unit	30 computer aided	1	
6	Cabinet	Wooden cabinet with two sections, lower section with cover and locked upper section	2	
7	Wireless Reciever	USB type wifi	5	
8	Cabinet	Steel, big size, key locking	2	
9	layer 3 switch	24 port web based management	1	

No.	Equipment	Specifications	Q'ty	Picture
10	Cable tester	Rj45, cat5 cable tester	2	
11	Crimper	For rj45 (network)	5	
12	OS	Windows Xp	21	
13	Software	Office xp 2002	21	
14	Software	Proteus (Electronic Circuit Design program)	21	
15	Software	Antivirus Program	21	
16	TANDBERG-VST - IMAGE SYSTEMS	770 MXP NPP Video Conference Apparatus	1	
17	TANDBERG	For hardware and software of Tandberg 770 two year guaranty	1	
18	TANDBERG	Put up local VK system, apply the configuration and testing. For user giving training	1	
19	VITEC Camera	VCD-080C 1/4 Fastrax II Color High Speed Dome Camera	1	
20	VITEC Control unit	VKC-120CZ High Speed Dome Control Unit	1	
21	HITACHI-whiteboard	Starboard F-Series Starboard interactive whiteboard 75" Wireless		

No.	Equipment	Specifications	Q'ty	Picture
22	STAND	For Interactive Whiteboard wheel	1	
23	SANYO projector	PLC-XU73 2000 Lümen, 1024"768 pixel projection	2	
24	LITE OUT screen	240x200 with stor projection screen	1	
25	SHURE - microphone VOICE SYSTEM	PGX 24/58 UHF Professional Collar type microphone	1	
26	SHURE--microphone	MX Series Professional microphone	1	
27	SHURE-microphone	Ezo Series Overhead Ceiling Microphone	4	
28	ALESIS- Deck mixer	Multimix 16 USB 8 Mono+ 4 Stereo channel pro, Deck mixer	1	
29	JEDIA-Power Amplifier	JPA-120DP 1 Channel Power Amplifier 120 Watt 100 Volt	1	
30	JEDIA-Speaker	JCO-120 20 Watt 100V Acoistics Speaker	4	
31	STAGE BOX	4 Cahannel milgicone stage Box.XLR-1/4 TRS Connector-20 Meter	1	
32	TABLE- FURNITURE SYSTEM	For Three person table	10	
33	ARMCHAIR	Adjusttable	31	
34	PULPIT	illumitanition	1	
35	ARÇELİK- Klima	6205 AA cooling capacity.(BTU/h)24500 heating capacity heat pump klima	2	
36	INTERNET-Access point	Wireless Internet system access point- ADSL	2	

No.	Equipment	Specifications	Q'ty	Picture
37	RIELLO-Ups	USB, 6KVA 8-20dk UPS	1	
38	HP- PC COMPUTER	DX6120 p4 3.06ghz 512mb 160go 17" monitor	1	
39	LG-LAPTOP	LW60-jcvt sonoma 1.8Ghz 1Gb 80Gb QTr 99 Keyboard	1	
40	AVERMEDIA Camera	Aver Vision 300 Document Camera	1	
41	SET UP – SOFTWARE	Electronic Structure set up and assembled(Other cities)	1	
41	Computer	P4	21	
43	Hard disk	80 GB	21	
44	Hard disk slider		21	

Teachers Room

No.	Equipment	Specifications	Q'ty	Pictures
1	Windows Xp		8	
2	Office Xp 2002		8	
3	Cabinet	Metal	2	
4	Cabinet	Wood	1	
5	Working table	for 8 persons	1	

No.	Equipment	Specifications	Q'ty	Pictures
1	Laser Printer (Xerox)	Color A3 formatted	1	
2	Computer	P4 3.0 GHz	4	
3	Switching hub	8 ports	1	
4	Floor covering	PVC	1	
5	HP Scanner		1	

NO:	Malzeme Adı		Miktarı	Özellikleri		Kullanılan Modüller
No.		Name of Equipment	Q'ty	Short Spec.	S No.	Module
1	Renkli Yazıcı	Color Printer	1	hp office jet 7110	—	ŞEF ODASI
2	Split Klima	Air conditioner	4	Arçelik 6210 AY	—	LABORATUAR
3	Bilgisayar PC	PC computer	1	P4 3,21 GHz, 524 RAM HDD 60 GB DVD ROM KULAKLIK F KLAVYE 600 VA UPS	—	ÖĞRETMENLER ODASI
4	Fotokopi Mak.	Photocopy machine	1	(25 çek çok foksi)	—	ÖĞRETMENLER ODASI
5	Bilgisayar Masası Öğrenci	Computer desk for students	1		—	ÖĞRETMENLER ODASI
6	Yazıcı Lazer1200*1200	Laser Printer	1	Samsung ML 2250	—	ÖĞRETMENLER ODASI
7	CD Çoğaltıcı(5'li)	CD Recorder	1			BİLGİSAYAR LAB.
8	Karteks Dolabı	Hard Disk	1	4 Gözlü	—	ŞEF ODASI
9	Öğretmen dolabı	Teacher cabinet	3	Sekiz gözlü	—	ÖĞRETMENLER ODASI
10	Sınıf dolabı	Cabinet	6	180 cm.	—	LABORATUAR
11	Teşhir Dolabı	Show cabinet	1		—	LABORATUAR
12	DVD Player Cihazı	DVD Player	1		—	ELEKTRONİK VE BİLG. LABORATUAR
13	Toplantı Masası	Meeting table	1	Modüller 8 Parça	—	TOPLANTI SALONU
14	Misafir Sandelyesi	Armchair	30		—	ÖĞRETMENLER ODASI
15	Tabure	Stool	40		—	ÖĞRETMENLER ODASI
16	Televizyon	Television, 72inch	1	Arçelik 100Hz. 72 Ekran	—	LABORATUAR
17	Masa Matkap Tezgahı	Bench drilling machine	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
18	Dönerli Tezgah Mengenesi	Bench Vise	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
19	Masa Matkap Tezgahı Minyatör	Table type bench drill	5		1	EL TSVİYECİLİĞİ(Hand Made Production)
20	Bağlantı Elemanları Eğitim Seti	Connexion elements training set	1		—	TEKNİK RESİM
21	Bilgisayar Laboratuvarı (30+1)	Computer	31	P4 3.4 GHZ 1 GB RAM DVD ROM KULAKLIK F KLAVYE MOUSE 600 VA UPS 60 GB HDD	5,8, 17,21	PROGRAMLAMA LAB.(Basic Computer Networks),(Control With Computer),(Basic Computer Networks and Server Services),(Internet Prograqming qand Security)

22	Endüstriyel Elektronik Eğitim Seti	Industrial Electronic experiment Set	10	Simetrik Sabit Güç Kaynağı -12, 0, +12 V DC / Elektronik koruma / 1 A Ayarlı DC Güç Kaynağı Çıkış Gerilimi : 0-36 V Çıkış Akımı : 0-1 A Displayler : 3½ LED Akım ve Gerilim Sabit AC Güç Kaynağı 12, 0, 12 V AC / 1 A / sigorta korumalı,Sinyal Üretici Frekans Aralığı Çıkışlar : Sinüs, Üçgen, Kare (TTL)	2	ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)
23	Endüstriyel Elektronik Eğitim Seti uygulama Modülleri	Modules for Industrial Electronic experiment set	50	. Manyetik rölenin incelenmesi . Termik rölenin incelenmesi . Manyetik ve termik rölenin birlikte kullanılması . Transistörün anahtar olarak kullanılması . Transistörün anahtar olarak kullanılması . RC zaman sabitinin incelenmesi . RL zaman sabitinin incelenmesi . RL zaman sabitinin incelenmesi . Schmitt Trigger devresinin incelenmesi . Schmitt Trigger devresinin incelenmesi . Trun-on zamanlayıcıların incelenmesi . Turn-off zamanlayıcıların incelenmesi . Uzun zaman geciktirme devresinin incelenmesi . Arka arkaya çalışan devrenin incelenmesi . Transformatörlü merdiven otomatığı . Transformatörsüz merdiven otomatığı	2	ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)
24	İşlemsel Yükselteçler Elektronik Eğitim Seti	Operational Amplifier experiment set	5	Simetrik Sabit Güç Kaynağı -12, 0, +12 V DC / Elektronik koruma / 1 A Sinyal Üretici Frekans Aralığı Çıkışlar : Sinüs, Üçgen, Kare (TTL) İki adet Voltmeter 0-199 mV / 0-99,9 V / 3½ dijital LED	2	D.A. DEVRELERİ(DC Circuit)
25	İşlemsel Yükselteçler Elektronik Eğitim Seti Uyg.Modülleri	Modules for Operational Amplifier experiment set	20	. Kıyaslayıcının incelenmesi . Kıyaslayıcının incelenmesi . Toplayıcının incelenmesi . Fark yükseltecinin incelenmesi . Türev alıcının incelenmesi . İntegral alıcının incelenmesi . Logaritmik yükseltecin incelenmesi . Enstrümantasyon yükseltecin incelenmesi	2	D.A. DEVRELERİ(DC Circuit)

26	Temel Seviye Dijital Elektronik Eğitim Seti	Basic Electronic Test Set	7	Sabit TTL Güç Kaynağı +5 V / 1,2 A / Elektronik Koruma TTL Darbe Üretici 1 Hz – 20KHz Ayarlı 12 bit TTL Binary Anahtar 8 bit Lojik Gösterge	2	LOJİK DEVRELER(Logic Circuit)
27	İleri Seviye Dijital Elektronik Eğitim Seti	Logic test set	7	Sabit TTL Güç Kaynağı +5 V / 1,2 A / Elektronik Koruma TTL Darbe Üretici 1 Hz – 20KHz Ayarlı 12 bit TTL Binary Anahtar 8 bit Lojik Gösterge Dahili Uygulamaların yapılabilmesi için breadboard	2	LOJİK DEVRELER(Logic Circuit)
28	PIC 16F877 Mikrodenetleyici Eğitim Seti	PIC 16F877 Microcomputer set	11	Mikrodenetleyici : EA-16F877 Temel Set İletişim portları : DSUB-9 Seri RS232 arabirim (DSUB-9 Seri RS232 arabirim	2	LOJİK DEVRELER(Logic Circuit)
29	8051 Mikro işlem Eğt.Seti	8051 Microcontroller set	5	Ana konsolde veri giriş ve çıkışlarına yönelik deneyler için 8 adet 3mm kırmızı LED ile 8 bit binary anahtar bulunmaktadır. Ayrıca 4 adet 7 parçalı LED gösterge, RS232 seri haberleşme kanalı, 2 satır 16 harf LCD gösterge ve mikrodenetleyicinin sinyallerinin bulunduğu 3 adet soket bulunmaktadır.	2	LOJİK DEVRELER(Logic Circuit)
30	20 MHZ Analok Osilaskop	Analog Oscilloscope	20	20 MHz Bant Genişliği Alt mag sweep özelliği ile aynı anda normal ve X 5 oranında büyütme 1mV /kare Düşey Hassasiyet x5 Mag. tarama büyüklüğü 2 kanal 4 iz	2	A.A. DEVRELER(AC Circuit)
31	Dijital Multimetre	Digital Multimeter	20	<ul style="list-style-type: none"> • AC Voltaj , frekans ve sıcaklık ölçümleri için iki kademeli ekran • TrueRMS AC voltaj ,akım ve desibel okuma • RS 232 ara bağlantısı ve özel yazılımı ile bilgisayara veri aktarma olanağı • 10 Dahili hafıza • Min, Max, ve Avg (ortalama) alma özelliği • Desibel ölçümü • Kapasite , iletkenlik, frekans ve sıcaklık ölçümü • Logic ve Audible testler için Pulse Signal Injection Fonksiyonu 	2	LOJİK DEVRELER(Logic Circuit)

32	Isı Ayarlı Havya	Heat adjusted soldering iron	20	Sıcaklık Aralığı 0C 250 – 450 0C 0F 500 – 850 0F Sıcaklık Kararlılığı +/- 6 0C (9 0F) Isıtma Gücü 350 0C 45 W	2	LEMİM VE BASKI DEVRE(Soldring and Printing Circuit)
33	Isı Ayarlı Havya	Heat adjusted soldering iron	2	Sıcaklık Aralığı 0C 200 – 480 0C 0F 392 – 896 0F Sıcaklık Kararlılığı + / - 3 0C (0F) Isıtma Çıkışı 24 VAC (Trafo Çıkışlı) Isıtma Gücü 60 W	2	LEMİM VE BASKI DEVRE(Soldring and Printing Circuit)
34	DC Tekli Güç Kaynağı	DC Power Supply	20	0-30 V DC İnce Ve Kaba Ayarlı 0-6 A DC İnce Ve Kaba Ayarlı	2	GÜÇ KAYNAĞI YAPIMI(Making Power Supply)
35	Fonksiyon Jeneratörü	Function generator	20	FREKANS ARALIĞI 0.03Hz - 3MHz 7 Kademede ÇIKIŞLAR Sinüs , Üçgen, Kare dalga , TTL kare dalga ,Pulse, Ramp, Skewed sinüs dalga	2	ANALOG DEVRE ELEMENLARI(Making Electronic Circuit Using Analog Parts)
36	Direnç Kutusu	Adjusted resistance box	20	X1R 2 W Max / 2 Volt Max X10R 2 W Max / 4.4 Volt Max X100R 2 W Max / 14 Volt Max X1K 1 W Max / 30 Volt Max X10K 1 W Max / 100 Volt Max X100K 1 W Max / 315 Volt Max X1M 1/2 W Max / 700 Volt Max X10M 1/2 W Max / 2200 Volt Max	2	D.A. DEVRELERİRE ELEMENLARI(DC Circuit) I- ANALOG DEVRE ELEMENLARIII(Making Electronic Circuit Using Analog Parts)
37	Bobin Kutusu	Bobbin Box	20	KADEMELER 0,1nF – 1nF 1nF – 10nF 10nF – 100nF 100nF - 1µF 1µF – 10µF	2	A.A. DEVRELERİ(AC Circuit) - ANALOG DEVRE ELEMENLARIII(Making Electronic Circuit Using Analog Parts)
38	Kondansatör Kutusu	Adjusted capacitance box	20		2	A.A. DEVRELERİ(AC Circuit) - ANALOG DEVRE ELEMENLARIII(Making Electronic Circuit Using Analog Parts)
39	PLC Eğitim Seti Operatörü Panelli	PLC Training set	5	Güç kaynakları 24 V DC / 4,5 A – 5 V dc / 1,2 A Sayısal Girişler 16 kanal LED göstergeli sayısal giriş Sayısal Çıkışlar 16 kanal LED göstergeli sayısal çıkış Analog giriş 2 kanal (12 bit) Analog çıkış 1 kanal (12 bit) Bellek 5 K program belleği Sayıcı / zamanlayıcı 144 adet Sayıcı belleği 10 Kb Sürücü 2 adet adım-motor sürücü İletişim 2 adet RS232	2	LOJİK DEVRELER(Logic Circuit)

40	İleri Seviye Sensör Eğitim Seti	Sensor Experiment Set	5	Yukarı/Aşağı sayıcı 4 Dijit LED display Frekansmetre 500 KHz max. Doğrusal hareket mm skalalı, hız ve yön kontrollü Dairesel hareket Derece skalalı, hız ve yön kontrollü Kullanılan sensörler Endüktif Kapasitif,Manyetik Karşılıklı optik sensör Yansıtıcı optik sensör Cisimden yansımali optik sensör Mekanik sensör	2	ANALOG DEVRE ELEMENLARI(Making Electronic Circuit Using Analog Parts)
41	Asansör Eğitim Seti	Elevator Experiment set	5	Kit, hem PLC hemde diğer mikrodenetleyicilerle kontrole uygun olarak tasarlanmı ştır. Gerçek 3 katlı bir asansörün küçültülmüş bir modeli olan kit sökülebilir özelliktedir.	2	LOJİK DEVRELER(Logic Circuit)
42	Pnömatik Elektropnömatik Eğt.Seti	Electro pneumatic education set	2	Pnömatik, elektropnömatik, PLC ve adım motor'lardan oluşur.	2	LOJİK DEVRELER(Logic Circuit)
43	PLC Eğitim Seti Operatörü Panellsiz	PLC Training set	6	Güç kaynakları 24 V DC / 4,5 A – 5 V dc / 1,2 A Sayısal Girişler 16 kanal LED göstergeli sayısal giriş Sayısal Çıkışlar 16 kanal LED göstergeli sayısal çıkış Analog giriş 2 kanal (12 bit) Analog çıkış 1 kanal (12 bit) Bellek 5 K program belleği Sayıcı / zamanlayıcı 144 adet Sayıcı belleği 10 Kb Sürücü 2 adet adım-motor sürücü İletişim 2 adet RS232	2	LOJİK DEVRELER(Logic Circuit)

44	Temel Elektrik Elektronik Seti	Electric Electronic training set	5	TTL Uyumlu Simetrik Sabit Güç Kaynağı -5, 0, +5 V DC / Elektronik koruma / 1 A Simetrik Sabit Güç Kaynağı -12, 0, +12 V DC / Elektronik koruma / 1 A Ayarlı Dc Güç Kaynağı Çıkış Gerilimi : 0-36 V Çıkış Akımı : 0-1 A Displayler : 3½ LED Akım ve Gerilim Sabit AC Güç Kaynağı 12, 0, 12 V Ac / 1 A / sigorta korumalı Frekans Aralığı Çıkışlar : Sinüs, Üçgen, Kare (TTL) Genlik : 0 – 10 Vpp Frekans : 1 Hz – 100 kHz Binary Anahtar ve Göstergesi 8 Bit Sabit Osilatör 1Hz-10Hz-100Hz-1KHz-10KHz-100KHz TTL İki adet 7 segmentli decoder/display 8 bit Lojik LED Gösterge İki gurup kontaklı 12 VDC röle 8 Ohm 2 W Hoparlör Breadboard 2800 delikli / yerinden alınabilir özellikli	2	ANALOG DEVRE ELEMENLARI(Making Electronic Circuit Using Analog Parts)
45	Landberg 770 NPP (only IP) MXP V.K Cihazı	video conference system equipment	1		—	AKILLI SINIF Smart class
46	Vitec 080 C Fastrax II18X Speed Dome Kamera	video conference camera	1		—	AKILLI SINIF Smart class
47	VKC 120 CZ Speed Dome Kontrol Ünitesi	video conference control unit	1		—	AKILLI SINIF Smart class
48	Hitachi Starboard 75"Wireless Yazı Tahtası	wireless writing board	1		—	AKILLI SINIF Smart class
49	Hitachi İnteraktif Yazı Tahtası için Tekerlekli St	additional unit for wireless writing board	1		—	AKILLI SINIF Smart class
50	Ganyo PLC XU 73 2000 Lümen 1024*768 Çözünürlük pro.	Projector	2		—	AKILLI SINIF Smart class
51	Lite Out 240*200 Storlu Perde	curtain	1		—	AKILLI SINIF Smart class
52	Shure PGX 14/83 UHF Profesyonel Yaka Tipi Telsiz M.	professional batch type microphone	1		—	AKILLI SINIF Smart class
53	Shure Mikrofon MX Serisi Kondansatör Kürsü Mikrofon	desk type microphone	1		—	AKILLI SINIF Smart class
54	Shure Mikrofon EZO Overhead Tavan Mikrofonu	overhead cell microphone	4		—	AKILLI SINIF Smart class
55	Alesis Deck Mikser Multimix 16 FX USB	sound mixer	1		—	AKILLI SINIF Smart class
56	Jedia AMPLİFİYER POWER JPA 120 DP 120 WATT	amplifier power	1		—	AKILLI SINIF Smart class
57	Jedia Duvar Hoparlörü 20w. JCO 120	wall loudspeaker	4		—	AKILLI SINIF Smart class
58	Avermedia Avervision 300 Doküman Kamera	documents camera	1		—	AKILLI SINIF Smart class
59	LG LW 60 JCbt notebook	notebook	1		—	AKILLI SINIF Smart class
60	HP DX 6120160G 512M.3PC	HP pc	1		—	AKILLI SINIF Smart class

61	USB 6KVA B-20 Dk.UPS	UPS power supply	1		—	AKILLI SINIF Smart class
62	Mobilya Konuşmacı Kürsüsü	speaker pulpit	1		—	AKILLI SINIF Smart class
63	Mobilya Sekreter Koltuk Kolu	armchair	31		—	AKILLI SINIF Smart class
64	Tablası 30mm.Tek Yüzlü Suntalam 3 Kişilik Masa	table for three person	10		—	AKILLI SINIF Smart class
65	Kablosuz Erişim Noktası	wireless connection point	2		—	AKILLI SINIF Smart class
66	6 Kanal DMX Işık Kontrol Dimmeri	light control dimmer	1		—	AKILLI SINIF Smart class
67	Yamaha GA Mixer Kanal Pot Sürgülü Mono	sound mixer	2		—	AKILLI SINIF Smart class
68	Santral 4/128 DIA- Up Servis	Telephone exchange	1		—	ELKTRONİK VE BİLG. LAB
69	Anahtar Takımı Açık	Open ended wrench	3	(6-32)	1	EL TSVİYECİLİĞİ(Hand Made Production)
70	Anahtar Takımı Kombine	Wrench	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
71	Anahtar Takımı Alien	Allen wrench	1	(0-12)	1	EL TSVİYECİLİĞİ(Hand Made Production)
72	Anahtar Takımı Yıldız	Box spanner	3	(6-32)	1	EL TSVİYECİLİĞİ(Hand Made Production)
73	İngiliz Anahtarı	Adjustable wench	4		1	EL TSVİYECİLİĞİ(Hand Made Production)
74	İzole Pense	Pliers	4	(orta 140-160)	1	EL TSVİYECİLİĞİ(Hand Made Production)
75	Pafta Takımı	Die set	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
76	Klavuz Takımı	Glide arm	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
77	Delik Genişletici	Hole enlarger	16	(Konik Rayba)	1	EL TSVİYECİLİĞİ(Hand Made Production)
78	Boru Kesici	Pipe cutter	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
79	Yağdanlık	Greaser	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
80	Çektirme Üç Ayak	Puller	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
81	Çektirme (mil) İki ayak	Puller	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
82	Metal Çekiç	Metal hammer	4	Orta Boy	1	EL TSVİYECİLİĞİ(Hand Made Production)
83	Plastik Çekiç	Plastic hammer	4		1	EL TSVİYECİLİĞİ(Hand Made Production)
84	Sekman Pensi Mil	Segmend pliers (shaft)	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
85	Sekman Pensi Göbek	Segmend pliers (hub)	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
86	Darbeli el Breyzi	impact hand braze	4	Bosch	1	EL TSVİYECİLİĞİ(Hand Made Production)
87	Spiral	Spiral grinder	2		1	EL TSVİYECİLİĞİ(Hand Made Production)

88	Numaratör Rakam	Numerator	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
89	Çelik Cetvel	Steel ruler	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
90	Dijital Mikrometre	Digital micrometer	1		1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milinng Machine)
91	İç Çap Mikrometresi	Inner diameter micrometer	1		1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milinng Machine)
92	Çelik Çizecek	steel ruler	5		1	EL TSVİYECİLİĞİ(Hand Made Production)
93	Dekopaj Testere Saç İçin	Picking saw	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
94	Şapkalı Gönye	Square with cap	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
95	90 Dereceli Gönye	90 degree square	11		1	EL TSVİYECİLİĞİ(Hand Made Production)
96	Hassas Su Terazisi	Sensitive sprit level	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
97	Kaynak Çekici	Welding hammer	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
98	Dijital Dış Çap Kumpas	Digital compass	3		1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milinng Machine)
99	Dijital mikrometre	Digital micrometer	2		1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milinng Machine)
100	Metrik Kumpas Dijital iç çap -	Metric compass inner	2	(0-25 mm)	1	EL TSVİYECİLİĞİ(Hand Made Production)
101	Manyetik Ayak	Magnet foot	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
102	Merkezleme Gönyesi	Centric square	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
103	Dijital Mihengir	Digital marking gauge	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
104	Dijital Mikrometre	Digital micrometer	1	0-25 Dış çap	1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milinng Machine)
105	Dijital Mikrometre	Digital micrometer	1	20-50 Dış çap	1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milinng Machine)

106	Dijital Mikrometre	Digital micrometer	1	50-75	1	EL TESVİYECİLİĞİ(Hand Made Production), TEMEL FREZLEME İŞLEMLERİ(Preparation on Milling Machine)
107	Perçin Makine Seti	Riveting machine	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
108	V Yatağı	V block	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
109	Yükseklik Ölçü Aleti-	Height gauge	1	Verniyerli,saati	1	EL TSVİYECİLİĞİ(Hand Made Production)
110	Yüzey İşaretleme Aleti-	Scriber	2	Daire tipi	1	EL TSVİYECİLİĞİ(Hand Made Production)
111	Yüzey İşaretleme Aleti-	Scriber	1	Kare tipi	1	EL TSVİYECİLİĞİ(Hand Made Production)
112	Anahtar Takımı	Wrench	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
113	Ayarlı Pense	Pliers	1		1	EL TSVİYECİLİĞİ(Hand Made Production)
114	Boru Anahtarı	Pipe wrench	1	12"	1	EL TSVİYECİLİĞİ(Hand Made Production)
115	Karga Burnu	Long nose pliers	4	Küçük	2	DOĞRU AKIM ESASLARI(DC Circuit)
116	Keski Takımı	Chisel	1		2	DOĞRU AKIM ESASLARI(DC Circuit)
117	Lokma Takımı	Die set	6		1	TEMEL TORNALAMA(Lathe Process)
118	Pafta ve Klavuz Takımı	Diestock and guide arm	1	Metrik 4,6,8,10,12	1	TEMEL TORNALAMA(Lathe Process)
119	Pafta ve Klavuz Tk.	Diestock and guide arm	1	Withworth	1	TEMEL TORNALAMA(Lathe Process)
120	Pense	Pliers	10		2	DOĞRU AKIM ESASLARI(DC Circuit) - EL TESVİYECİLİĞİ(Hand Made Production)
121	Pergel Dış İç Çap	Compass	2		1	EL TSVİYECİLİĞİ(Hand Made Production)
122	Kablo Soyucu	Cable peeler	2		2	DOĞRU AKIM ESASLARI(DC Circuit)
123	X2 Masa Üstü Freze Tezgahı	miller counter	1		1	TEMEL TORNALAMA(Lathe Process)
124	Masa Üstü Torna Tezgahı	Lathe machine	1		1	TEMEL TORNALAMA(Lathe Process)
125	M2 Masa Üstü Matkap Torna Tezgahı	Drill machine	1		1	TEMEL TORNALAMA(Lathe Process)
126	Batarya Şarj Cihazı	battery charger	2		2	LOJİK DEVRELER(Logic Circuit)
127	Servo Motor	Servo motor	8		2	ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)

128	Sıcaklık Test Cihazı	Temperature test set	2		2	ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)
129	Asit Bayosu ve Pozlandırma cihazı	Acid Batch	1	<p>PCB İşlem Banyosu kapları caustic soda (NaOH) ile pozlandırılmış PCB nin banyo işlemi için tasarlanmıştır.</p> <p>PCB Asit Aşındırma Banyosu sistemi, PCB kartlarının her iki yüzünde aynı anda işleme sokacak biçimde tasarlanmıştır</p> <p>PCB Pozlandırma sistemi, ışığa duyarlı optik boyaları PCB üzerinde pozlandırmak için tasarlanmıştır.</p> <p>PCB Yıkama sistemi, PCB kartlarının asit banyosu işleminden sonra yıkanması için tasarlanmıştır</p>	2	LEMİM VE BASKI DEVRE(Soldring and Printing Circuit)

130	Ayarlı Sim Güç Kaynağı	Adjustable DC power supply	10	Ttl Güç Kaynağı 5 V DC / 3 A 2 X 0-30 V DC İnce Ve Kaba Ayarlı 2 X 0-3 A DC Ayarlı	2	D.A. DEVRELERİ(DC Circuit)
131	Vakumlu Hava Seti	Vacuum suction pump for soldering	1		2	LEMİM VE BASKI DEVRE(Soldring and Printing Circuit)
132	Sürgülü Reosta	Sliding resister	8		2	A.A. DEVRELERİ(AC Circuit) - ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)
133	Toprak Test Cihazı	Grounding tester	1			GÜÇ KAYNAĞI YAPIMI(Making Power Supply)
134	Varyak	Variac	8		2	A.A DEVRELERİ(AC Circuit)
135	Yalıtım Test Cihazı	Insulating tester	1			GÜÇ KAYNAĞI YAPIMI(Making Power Supply)
136	Siwich Hup 24 port	Switching Hub 24 port	8	24 port	—	Server Odasi(Server Room)
137	Siwich Hup 8 Port	Switching Hub 8 Port	4	8 Port	—	Server Odasi(Server Room)
138	ADSL Modem 4 Port	ADSL Modem 4 Port	1	4 Port	—	Server Odasi(Server Room)
139	Faks Modem (External)	Fax modem	4		—	Server Odasi(Server Room)
140	Kablo Test Cihazı(Network)	Cable tester	5		—	Server Odasi(Server Room)
141	RJ-45 Pense	RJ-45 Pliers	6		—	Server Odasi(Server Room)
142	Kabin Laver 3TVT	Server cabinet	1		—	Server Odasi(Server Room)
143	Laver 3 Siwich Hub(24 Port)	L3 Giga switch(24 port)	2	(24 Port)	—	Server Odasi(Server Room)
144	Takım Çantası	Tool box	10		—	
145	Entegre Sökücü	Integrated extractor	1		2	LEMİM VE BASKI DEVRE(Soldring and Printing Circuit)
146	Lehim Pompası	Soldering pump	1		2	LEMİM VE BASKI DEVRE(Soldring and Printing Circuit)
147	Sıcaklık Probu Çubuk	Temperature probe	2		2	ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)
148	Sıcaklık Probu	Temperature probe	2		2	ANALOG DEVRE ELEMANLARI(Making Electronic Circuit Using Analog Parts)
149	Beardbord	Bread board	31		2	LOJİK DEVRELER(Logic Circuit)
150	CNC DİK İŞLEME MERKEZİ (EMCO CONCEPT MILL 155S) (Q1FT1201)	CNC Milling machine (EMCO CONCEPT MILL 155S)	1		11	ELEKT VE BİLG.LAB(Automatic Manufacturer).

157	KALİTE KONTROL İSTASYONU (Festo)	quality Control station	1		10	ELEKT VE BİLG.LAB(Factory Automation)
	Kalite Kontrol İstasyonu Ethernet arayüzlü Kamera(DVTSensors _ Legend 542C)	ethernet interfaced camera	1			ELEKT VE BİLG.LAB(Factory Automation)
	Kalite Kontrol İstasyonu Ethernet arayüzlü Kamera Yazılımı (Limitsiz) DVT (Framework)	camera software	1			ELEKT VE BİLG.LAB(Factory Automation)
158	KONVEYÖR (Festo)	Conveyer	1		10	ELEKT VE BİLG.LAB(Factory Automation)
159	ENDÜSTRİYEL ROBOT(Mitsubishi RV3SB)	Industrial Robot	1	(Mitsubishi RV3SB)	10	ELEKT VE BİLG.LAB(Factory Automation)
160	ROBOTLA MONTAJ İSTASYONU(Mitsubishi RV3SJB)	Robot montage station	1	(Mitsubishi RV3SJB)	10	ELEKT VE BİLG.LAB(Factory Automation)
161	ROBOT KONTROL SİSTEMİ (Mitsubishi CR2B-574)	Robot control system	1	(Mitsubishi CR2B-574)	10	ELEKT VE BİLG.LAB(Factory Automation)
162	KOMPRESÖR(Komsan VEK5,5-Kurutucu-2 adet filtre)	Compressor	1		10	ELEKT VE BİLG.LAB(Factory Automation)
163	Dağıtım istasyonu (PLC ve profibus haberleşmeli)	Distribution station	1		10	ELEKT VE BİLG.LAB(Factory Automation)
164	Test istasyonu (PLC ve profibus haberleşmeli)	Testing station	1		10	ELEKT VE BİLG.LAB(Factory Automation)
165	İşleme istasyonu (PLC ve profibus haberleşmeli)	Embroidered station	1		10	ELEKT VE BİLG.LAB(Factory Automation)
166	3D SCANNER	3D SCANNER		(Roland Pix-30)	10	ELEKT VE BİLG.LAB(Factory Automation)
167	Otomasyon Eğitim İstasyonları Bilgisayarı	automation training station Computer	3	P4 3.2 GHZ 1 GB RAM 120 GB HDD 107 T 60 RODEON X550 USB - PS2 CONVERTER DVD ROM KULAKLIK F KLAVYE MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	10	ELEKT VE BİLG.LAB(Factory Automation)

168	Ana Bilgisayar	main Computer	1	P4 3.4 GHZ 2 GB RAM 160 GB HDD HYUNDAI Q995 RODEON X550 USB - PS2 CONVERTER DVD WR HOPARLÖR +MİC 1 ADET F KLAVYE MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).
169	DEPOLAMA İSTASYONU BİLGİSAYARI	storage Computer	1	P4 3.2 GHZ 1 GB RAM 120 GB HDD 107 T 60 RODEON X550 USB - PS2 CONVERTER DVD ROM KULAKLIK 1 ADET F KLAVYE 1 ADET MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).

170	KONVEYÖR İSTASYONU BİLGİSAYARI	conveyor station Computer	1	P4 3.2 GHZ 1 GB RAM 120 GB HDD 107 T 60 RODEON X550 USB - PS2 CONVERTER DVD ROM KULAKLIK 1 ADET F KLAVYE 1 ADET MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).
171	MONTAJ ROBOTU VE KALİTE KONTROL İSTASYONU BİLGİSAYARI	montage and quality control station Computer	1	P4 3.2 GHZ 1 GB RAM 120 GB HDD 107 T 60 RODEON X550 USB - PS2 CONVERTER DVD ROM KULAKLIK 3 ADET F KLAVYE 3 ADET MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).

172	BESLEME İSTASYON ROBOTU BİLGİSAYARI	feeding station robot Computer	1	P4 3.2 GHZ 1 GB RAM 120 GB HDD 107 T 60 RODEON X550 USB - PS2 CONVERTER DVD ROM KULAKLIK 1 ADET F KLAVYE 1 ADET MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).
173	CAD/CAM Yazılımı(ESPRIT E13777)	CAD/CAM software (ESPRIT E13777)	1		11	ELEKT VE BİLG.LAB(Automatic Manufacturer).
174	ROBOT KONTROL ve BENZETİM (SİMÜLASYON)YAZILIMI	Robot control and imitation software	1	Cosimir Robotics	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).
175	ÖĞRENCİ BİLGİSAYARI	Computer	30	P4 3.2 GHZ 1 GB RAM 120 GB HDD 107 T 60 RODEON X550 USB - PS2 CONVERTER DVD ROM KULAKLIK 30 ADET F KLAVYE 30 ADET MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	6	ELEKT VE BİLG.LAB(Part Modelling Cad)

176	ÖĞRETMEN BILGISAYARI	teacher's Computer	1	P4 3.4 GHZ 2 GB RAM 160 GB HDD HYUNDAI Q995 RODEON X550 USB - PS2 CONVERTER DVD WR HOPARLÖR + MIKROFON F KLAVYE MOUSE SECURITY CARD KİLİT SİSTEMİ GİGABYTE BOARD 600 VA UPS	11	ELEKT VE BİLG.LAB(Automatic Manufacturer).
177	ÖĞRENCİ MASA	Student desk	30		—	ELEKT VE BİLG.LAB.
178	ÖĞRETMEN MASA	Teacher desk	1		—	ELEKT VE BİLG.LAB.
179	PRİNER SEHPA	Printer tripod	1		—	ELEKT VE BİLG.LAB.
180	KOLÇAKLI KOLTUK	Armchair	31		—	ELEKT VE BİLG.LAB.
181	SCANNER(MUSTEK SCANEXPRES A3)	Scanner	1		—	ELEKT VE BİLG.LAB.
182	YAZICI	printer	1	XEROX 7750 DN YEDEK TONER 4 ADET USB KABLO TÜRKÇE KULLANIM KİTABI KAĞIT TEPSİSİ	—	ELEKT VE BİLG.LAB.
183	PROJEKSİYON	Projector	1	TOSHIBA TDP T8 4 LÜ ÇOKLAYICI YEDEK LAMBA PROJEKSİYON PERDESİ TAVAN ASKI APARATI MOUSE FONKSİYONLU UZAK KUMANDA DATA KABLOSU (15mt)	—	ELEKT VE BİLG.LAB.