Lab 11 - ELECTRONICS MAINTENANCE

The laboratory includes a collection of training units covering the most important subjects of Electronics maintenance, especially suited for installation and maintenance engineers.
A section is dedicated to design and production of single and double-sided electronic cards.
It also includes commercial apparatus of latest design, like TV, telephony and PC equipment, modified for teaching purposes.

TRAINING STATIONS LIST

11.1	AUDIO & VIDEO EQUIPMENT
11.2	TELEPHONY EQUIPMENT
11.3	COMPUTER & ACCESSORIES
11.4	PRINTED CIRCUIT BOARDS (PCB) PRODUCTION
11.5	COMPUTER NETWORKS INSTALLATION AND MAINTENANCE

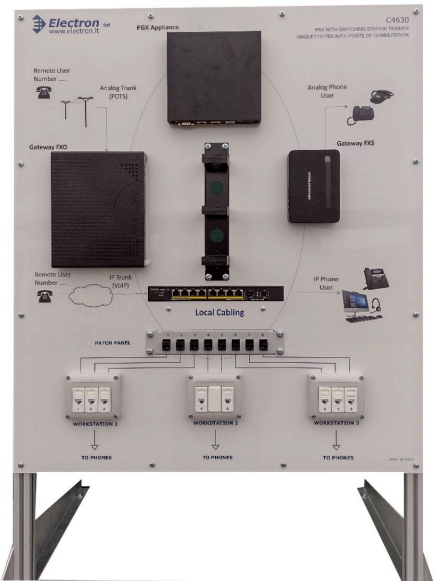
Products listed below are only given as indicative examples as constantly updated.

Equipment List

LAB N°	Item N°		TITLE	CODE		Total Qty	Stud WS 1	Stud WS 2	Stud WS 3	Stud WS 4	Stud WS 5	Stud WS 6	Stud WS 7	Stud WS 8	Teach WS	LAB
11			**ELECTRONICS MAINTENANCE LABORATORY**													
			See complete catalogue to see product description and other details.													
11			**AUDIO & VIDEO EQUIPMENT**													
11	1	1	STEREO HI-FI AMPLIFIER TRAINER	**B4410B**		**2**	*1*				*1*					
11	1	2	AM/FM RADIO TRAINER	**B4415**		**2**	*1*				*1*					
11	1	3	CD & DVD TRAINER	**B4425**		**2**		*1*				*1*				
11	1	4	DIGITAL TV TRAINER		**C4431**	**2**			*1*				*1*			
11	1	5	COMMUNAL TV ANTENNA TRAINER	**B4450**	**C4450**	**2**				*1*				*1*		
11	1	6	TV/SATELLITE LEVEL METER	**SM-2500**		**2**										*2*
11			**TELEPHONY SYSTEMS**													
11	2		**TELEPHONY**	**B46**												
11	2		PBX WITH SWITCHING STATION TRAINER		**C4630**	**2**	*1*				*1*					
11	2	2	CELLULAR TELEPHONE TRAINER		**C4625**	**2**		*1*				*1*				
11	2	3	TELEPHONE LINE TESTER	**B4685**		**1**										*1*
11			**PC HARDWARE**													
11	3	1	PC MAINTENANCE TRAINER		**C5140**	**2**			*1*				*1*			
11	3	2	LAPTOP TROUBLESHOOTING TRAINER		**C5140L**	**2**				*1*				*1*		
11	3	3	LASER PRINTER TRAINER	**B5145**	**C5145**	**2**			*1*				*1*			
11			**PRINTED CIRCUIT BOARDS PRODUCTION**													
11			**PRINTED CIRCUIT BOARDS PRODUCTION**	**B24**												
11	4	1	PRODUCTION OF SINGLE SIDE PCBs BY CHEMICAL PROCESS	**B2420**		**1**										*1*
11	4	2	MILLING AND DRILLING 3-AXES PC CONTROLLED MACHINE	**B2440**		**1**										*1*
			FURNITURE, METERS, POWER SUPPLIES & ACCESSORIES													
FM			**FURNITURE**													
FM	1	1	WORK TABLE	**F1110A**		**8**	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*		
FM	1	2	MOBILE LOWER CABINET	**F11 4146**		**8**	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*		
FM	1	3	STUDENT STOOL	**F11 1718**		**24**	*3*	*3*	*3*	*3*	*3*	*3*	*3*	*3*		
FM	1	4	TEACHER'S DESK	**F11 2126**		**1**									*1*	
FM	1	5	TEACHER'S CHAIR	**F11 5000**		**1**									*1*	
FM	1	6	CABINET FOR TOOLS & INSTRUMENTS	**F11 3310**		**4**										*4*
FM	1	7	TROLLEY	**F1151 R1**		**4**										*4*
FM			**MEASURING INSTRUMENTS & POWER SUPPLIES**													
FM	2	1	ANALOGUE MULTIMETER	**AM 7080**		**4**										*4*
FM	2	2	DIGITAL MULTIMETER	**DM Y68**		**4**										*4*
FM	2	6	DUAL TRACE OSCILLOSCOPE	**AO HZ4318**		**2**										*2*
FM	2	10	AC DC POWER SUPPLY	**C12 PS**		**8**	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*		
FM	2	5	STUDENT WORKSTATION	**B1180 WS**		**2**									*1*	*1*
FM	2	6	VIRTUAL INSTRUMENTATION FOR STUDENT WORKS ON	**B1180 VI**		**2**									*1*	*1*

© Electron Srl. Specifications may change without notice

C4630 • PBX WITH SWITCHING STATION TRAINER



The trainer is suitable to teach the structure and organization of modern PBXs as well as to familiarize the student with the installation aspects of such systems.

The system supports industry standard VoIP (Voice over Internet Protocol), SIP (Session Initiation Protocol) and ToIP (Telephone over IP).

The system supports all the open-standards and open-source protocols.

The unit gives to the students the basic knowledge to understand the technology involved, its applications and the practical aspects of PBX systems.

The unit can also be used as a general-purpose laboratory unit to experiment with modern telephone systems and with CTI (Computer Telephony Integration).

The rugged construction renders this unit particularly ideal for the most demanding of classroom conditions.

C4630 is composed by a synoptic panel with all the necessary appliance, gateways, and connections to do many kinds of experiments.

Accessories included: phones, set of cables.

The C4630 is powered from an AC single phase mains supply of 230V, 50 Hz

TECHNICAL CHARACTERISTICS

Line Capacity - Trunks

- 4 Analog Trunks (POTS)
- VOIP Providers / SIP Trunks

Line Capacity – Stations

- 4 analog stations
- 4 IP stations
- System is expandable adding more switch ports

Voice services

- IP phones
- Wireless Phone
- SIP devices
- Softphone

STUDY TOPICS

- Configuration and use of a VoIP PBX
- Gateway FXO and FXS
- SIP Trunks
- IP Phone and Analogue Phone
- Extensions
- Ring groups and Queues
- IVR (Interactive Voice Response)
- Call Flow Control and Time Conditions
- System recordings and Music on Hold
- Troubleshooting (i.e. unregistered extensions, call audio quality, call flow)
- Analysis of Voice traffic (requirement: free Wireshark software installed on the computer)

Instructor Guide is supplied along with complete relevant manuals.

Ordering Code: C4630

C4630-B version

Same of C4630, with added feature:
**Complete package copper cabling and fiber optics.*
** Network Troubleshooter testing device for UTP/STP copper cabling and fiber optic cabling and an SFP SX Fiber Optic Module.*

Ordering Code: C4630-B

www.electron.it

MADE IN ITALY

© Electron Srl. REV2. Specifications and physical appearance may change due to technology improvements or components availability, without affecting the educational value of the unit.