

INSTITUT TEKNOLOGI SEPULUH NOPEMBER
FORM PENGADAAN BARANG

No	Nama Barang	Spesifikasi	Jumlah Kebutuhan	Kegunaan/Keperluan
1	2	3	4	5
1	Multimeter Digital BK Precision 2709B	Tegangan DC: Rentang: 660 mV, 6,6 V, 66 V, 660 V, 1000 V Resolusi: 0,1 mV, 1 mV, 10 mV, 100 mV, 1 V Akurasi: $\pm (0,5\% \text{ rdg} + 2 \text{ rdg})$ Impedansi Masukan: 660 mV: $>100 \text{ M}\Omega$; 6,6 V: 10 MΩ; 66 V hingga 1000 V: 9,1 MΩ Perlindungan Overload: 1000 VDC atau 750 VACrms Volt AC (RMS Sejati) (50 Hz-500 Hz): Rentang: 660 mv, 6,6 V, 66 V, 660 V, 750 V Resolusi: 0,1 mV, 1 mV, 10 mV, 100 mV, 1 V Akurasi: rentang 660 mV pada 50 Hz hingga 60 Hz $\pm (1,5\% \text{ rdg} + 8 \text{ dgts})$; Rentang 6,6 V hingga 660 V: $\pm (1,5\% \text{ rdg} + 8 \text{ dgts})$; Rentang 750 V: $\pm (2,0\% \text{ rdg} + 8 \text{ dgs})$ Faktor Puncak: 3 Impedansi Masukan: 660 mV: $>100 \text{ M}\Omega$; 6,6 V: 10 MΩ; 66 V hingga 750 V: 9,1 MΩ Perlindungan Overload: 1000 VDC atau 750 VACrms Arus DC: Rentang: 660 uA, 6600 uA, 66 mA, 400 mA, 10 A Resolusi: 0,1 uA, 1 uA, 10 uA, 100 uA, 10 mA Akurasi: 660 uA hingga 400 mA rentang: $\pm (1,5\% \text{ rdg} + 2 \text{ dgts})$; 10 Rentang: $\pm (3,0\% \text{ rdg} + 3 \text{ dgts})$ Perlindungan Input: 0,5 A/500 V & 10 A/600 V sekering keramik pukulan cepat 10A Masukan: 10 A selama 60 detik maks. diikuti dengan periode pendinginan 10 menit Arus AC (RMS Sejati) (50 Hz-500 Hz): Rentang: 660 uA, 6600 uA, 66 mA, 400 mA, 10 A Resolusi: 0,1 uA, 1 uA, 10 uA, 100 uA, 10 mA Akurasi: 660 uA hingga rentang 400 mA: $\pm (2,0\% \text{ rdg} + 10 \text{ dgts})$; 10 Rentang: $\pm (3,5\% \text{ rdg} + 10 \text{ dgts})$ Faktor Puncak: 3 Perlindungan Input: 0,5 A/500 V & 10 A/600 V sekering keramik pukulan cepat 10A Masukan: 10 A selama 60 detik maks. diikuti dengan periode pendinginan 10 menit Perlawanan: Rentang: 660 , 6,6 kΩ, 66 k, 660 kΩ, 6,6 MΩ, 66 MΩ Resolusi: 0,1 , 1,0 , 10 , 100 , 1 kΩ, 10 kΩ Akurasi: 660 hingga 660 kΩ rentang: $\pm (1,2\% \text{ rdg} + 5 \text{ dgts})$; Rentang 6,6 M$\Omega$: $\pm (2,0\% \text{ rdg} + 5 \text{ dgts})$ Rentang 66 MΩ: $\pm (3,5\% \text{ rdg} + 5 \text{ dgts})$ Tegangan Sirkuit Terbuka (tipikal): -0,45 VDC (-1,2 VDC pada kisaran 660)	2	Peralatan Ukur Praktikum Pengukuran Listrik
2	SANWA Digital Multimeters RD700.	Pengukuran Kapasitansi. Memiliki suhu tipe K.Pengukuran Frekuensi. Memiliki fungsi ADP (untuk sensor arus). Memiliki pengukuran perekaman dengan maksimal. Memiliki fitur mode tombol off (mematikan) otomatis (15menit) (dibatalkan). Terdapat alarm yang digunakan untuk penyisipan uji lead yang tidak benar ke terminal arus. Memiliki sarung pelindung dengan gantungan dinding dan lead holder. Memiliki tilt stand (rentang kemiringan). 3-3 / 4 Digit 4000 Count 0,3 % Akurasi Terbaik Ac True Rms ; Rd701 Hanya Pengukuran Kapasitansi Tidak Cocok Untuk Pengukuran Kondenser Dengan Kebocoran Besar 0 0 Saat Ini . K Tipe Temperatur Opsional Aksesori K - Ad Diperlukan . K Tipe Temp. Sensor K - 250Pc Disertakan Sebagai Aksesori Standar Pengukuran Frekuensi Tegangan Input : 20Vacrms Dan Di Bawah Sinyal Input : Gelombang Tanda Atau Gelombang Persegi Dengan 40 % Tugas -70% Sensitivitas Masukan : 10Hz ? 20Khz / 0.9Vrms Dan Di Atas 20Khz ? 500Khz / 2.6Vp Atau 1.9Vrms Dan Di Atas 500Khz ? 1Mhz / 4.2Vp Atau 3Vrms Dan Di Atas Fungsi Adp (Untuk Sensor Arus) Pengukuran Rekaman Max Data Hold / Range Terus 0 Nilai Relative Auto Power Off (30Min.) (Dibatalkan) Alarm Untuk Tidak Tepat Memimpin Uji Penyisipan Untuk Saat Ini 0 Terminal Sarung Pelindung Dengan Gantungan Dinding Dan Memimpin 0 Pemegang Tilt Berdiri Tampilan: Tampilan Angka 4000 (Hz : 9999 , Kapasitansi : 5000) Sampling Rate : 3 Kali / Detik . (Hz : 2 Kali / Detik .)	14	Peralatan Ukur Praktikum Pengukuran Listrik
3	AEMC Instrument Box Model BR07	- Resistance box: 7 decades covering a range from 1Ω to 11.11111MΩ 11-position switches - Output via 4mm safety banana jacks - Accuracy: 1% $\pm$ 10mΩ on all ranges	2	Peralatan Ukur Praktikum Pengukuran Listrik
4	BK Precision Model 891	Best accuracy 0.05% Test frequency 20 Hz - 300 kHz Test levels 0.5 Vrms and 1 Vrms selectable Measurement parameters C/L/R/G/B/Y/D/Q/θ/DCR Antarmuka Jarak Jauh: USB (Virtual COM), GPIB, Ethernet Layar: Layar LCD 4,3" 480 × 272 Masukan AC: 104 V - 126 V, 50/60 Hz; 207 V - 253 V, 50/60 Hz Konsumsi Daya: 20 VA maks. Pengoperasian: Suhu 0 °C hingga 40 °C Suhu Penyimpanan: -10 °C hingga 70 °C Kelembaban Relatif: hingga 80% Dimensi (P×T×T): 258 × 113 × 381 mm Berat: 3,4 kg	1	Peralatan Ukur Praktikum Pengukuran Listrik

5	WATTMETER SEW 2102 (ST2000)	Current : 1/5A Voltage : 120/240V Power Factor : 1.0	3	Peralatan Ukur Praktikum Pengukuran Listrik
6	Digital LCR Meter Instek LCR-900 [LCR-916] 100kHz Handheld LCR Meter	20,000/2,000 Counts Dual Display Test Frequency : 100/120Hz/1/100kHz Auto LCR Mode for DUT Measuring 0.2% Basic Accuracy Measurement Parameter : L,C,R,D,Q,ESR,θ,DCR Parallel/Series Testing Mode Sorting Mode for Quality Control 2 Wire or 5 Wire Measurement Available Data Hold and Zero Mode Supported Auto Range, Auto Backlit Low Battery Indication Auto Power off Data Collection or AC power operation	3	Peralatan Ukur Praktikum Pengukuran Listrik
7	Voltmeter Analog Hioki 3030	Voltage: 12V Battery Cap: 1.3Ah Battery Type: Lithium Battery No Load Speed: 0-1300r/min Max. Diameter Chuck: 10mm Max. Thread Diameter: 8mm Net Weight: 2.2 Kg Gross Weight: 2.4 Kg	3	Peralatan Ukur Praktikum Pengukuran Listrik
8	Voltmeter Analog Sanwa YX-361TR	•Total 35 wide ranges(24ch sw + additional functions) •±DCV zero center meter •LED for continuity check •OUTPUT terminal(series capacitor terminal) •Battery check	9	Peralatan Ukur Praktikum Pengukuran Listrik
9	LENOVO ThinkCentre M70T i7-10700 32GB 1TB+512GB SSD Win10 Pro + LED - Packing Kayu	LENOVO ThinkCentre M70T (11EV002KIF) + LED 23.8 inch Garansi Resmi 3 Tahun Lenovo Indonesia (Onsite) Intel® Core™ i7-10700 Processor (8C / 16T, 2.9 / 4.8GHz, 16MB) Intel® H470 Chipset 32GB DDR4 2666MHz 1TB 7200RPM 2.5" + 512GB PCIe® NVMe™ M.2 SSD Intel® UHD Graphics 630 Windows 10 Pro 64 Bit DVD RW / 3-in-1 Card Reader / Power Supply 310W 92% USB Mouse & Keyboard / Intel 9560 11ac, 2x2 + BT5.0 Front Ports 1x USB-C 3.2 Gen 1 1x headphone / microphone combo jack (3.5mm) 2x USB 3.2 Gen 2 1x microphone (3.5mm) 2x USB 3.2 Gen 1 Rear Ports 4x USB 2.0 1x line-out (3.5mm) 1x serial (9-pin) 1x HDMI 2x DisplayPort 1x Ethernet (RJ-45)	1	PC Operator Mesin Workshop Capstone
10	BK Precision Bench LCR Meter Model 891	Best accuracy 0.05% Test frequency 20 Hz - 300 kHz Test levels 0.5 Vrms and 1 Vrms selectable Measurement parameters C/L/R/G/B/Y/D/Q/θ/DCR	1	Peralatan Ukur Workshop Capstone
11	Keysight U1232A	U1232A - Digital Multimeters True RMS DMM 6000 Count Handheld 'Key Features: • Built-in LED flashlight to illuminate test area • Flashing backlight as additional visual alert during • continuity tests in noisy environments • Vsense to perform non-contact voltage detection • Data logging capability (stores up to 10 readings) • IR-to-USB connectivity to transfer data to PC for record	1	Peralatan Ukur Workshop Capstone

12	Sanwa Digital Multimeter Multifunction RD700	Pengukuran Kapasitansi. Memiliki suhu tipe K.Pengukuran Frekuensi. Memiliki fungsi ADP (untuk sensor arus). Memiliki pengukuran perekaman dengan maksimal. Memiliki fitur mode tombol off (mematikan) otomatis (15menit) (dibatalkan). Terdapat alarm yang digunakan untuk penyisipan uji lead yang tidak benar ke terminal arus. Memiliki sarung pelindung dengan gantungan dinding dan lead holder. Memiliki tilt stand (rentang kemiringan). 3-3 / 4 Digit 4000 Count 0,3 % Akurasi Terbaik Ac True Rms ; Rd701 Hanya Pengukuran Kapasitansi Tidak Cocok Untuk Pengukuran Kondenser Dengan Kebocoran Besar 0 0 Saat Ini . K Tipe Temperatur Opsional Aksesori K - Ad Diperlukan . K Tipe Temp. Sensor K - 250Pc Disertakan Sebagai Aksesori Standar Pengukuran Frekuensi Tegangan Input : 20Vacrms Dan Di Bawah Sinyal Input : Gelombang Tanda Atau Gelombang Persegi Dengan 40 % Tugas -70% Sensitivitas Masukan : 10Hz ? 20Khz / 0.9Vrms Dan Di Atas 20Khz ? 500Khz / 2.6Vp Atau 1.9Vrms Dan Di Atas 500Khz ? 1Mhz / 4.2Vp Atau 3Vrms Dan Di Atas Fungsi Adp (Untuk Sensor Arus) Pengukuran Rekaman Max Data Hold / Range Terus 0 Nilai Relative Auto Power Off (30Min.) (Dibatalkan) Alarm Untuk Tidak Tepat Memimpin Uji Penyisipan Untuk Saat Ini 0 Terminal Sarung Pelindung Dengan Gantungan Dinding Dan Memimpin 0 Pemegang Tilt Berdiri Tampilan: Tampilan Angka 4000 (Hz : 9999 , Kapasitansi : 5000) Sampling Rate : 3 Kali / Detik . (Hz : 2 Kali / Detik .)	3	Peralatan Ukur Workshop Capstone
13	Solder Station Dekko 858	Solder Station + Hot Blower Digital Dekko 858 Output Power :70W / 750W Heat adjusment :200-480°C / 100-480°C Temperature Stability:±1°C / ±2°C Handle operating voltage:AC24V / AV220V Nozzle to ground resistance:Welding Nozzle to Ground voltage : Air Flow : 120L/min Dimension : 27 x 27 x 14 cm	3	Peralatan Fabrikasi Workshop Capstone
14	Kaca Pembesar untuk soldering	Produk : Pegangan Solder, PCD, LED, dan kaca pembesar	3	Peralatan Pendukung Workshop Capstone
15	BGA SMD Solder Machine Reflow Oven	Specification: Brand Name: HUAQIZHENG BANG Model Number: ZB2520HL Power supply: AC220V±10% 50Hz or custom-made 110V Max Power: 1600W Heating Method: Infrared Radiation Heating Air Circulation Effective Welding Area: 250mm*200mm Drawer size: 300*250*30mm	1	Peralatan Fabrikasi Workshop Capstone
16	Program Controlled BGA Rework Station Automatic Preheating	Tip-based Soldering Iron Adjustable temperature soldering tip: 200 °C to 480 °C Temperature stability +/- 1 °C Soldering iron power: from 72 to 75 W Voltage ground: up to 2 mV Ground resistance: 2 Ω	1	Peralatan Fabrikasi Workshop Capstone
17	Magnetic workbench for small SMD stencils	Magnetic workbench Maximum PCB dimensions: 160 mm x 270 mm PCB thickness: 1 mm or 1.6 mm Contents: - SMD stencil workbench (in magnetic Vanadium) - 4 permanent magnets - 1 slab of flexible magnetic strip (which can be cut to measure) - 0.6 mm spacer PCB Holder - 1 large PCB Holder 1.6 mm - 1 large PCB Holder 1.0 mm - 2 small PCB Holder 1.6 mm - 2 small PCB Holder 1.0 mm - 1 spatula	1	Peralatan Pendukung Workshop Capstone
18	Hand Drill Plat Orion CD-6650(Bor Tangan)	Voltage: 12V Battery Cap: 1.3Ah Battery Type: Lithium Battery No Load Speed: 0-1300r/min Max. Diameter Chuck: 10mm Max. Thread Diameter: 8mm Net Weight: 2.2 Kg Gross Weight: 2.4 Kg	1	Mesin Fabrikasi Workshop Capstone
19	Laser Cutter CNC LS-3020	Area potong : 30x20 cm Focal Length : 50.8 mm Tinggi meja naik turun : 8 cm Water Cooling Software : CorelDraw & Laser DRW Koneksi via USB	1	Mesin Fabrikasi Workshop Capstone

20	3D Printer Anycubic Kobra Plus LeviQ Direct Hotend High Speed Printing	• Printing Technology: FDM (Fused Deposition Modeling) • Layer Resolution: 0.05-0.3 mm • Supported Print Materials: PLA, ABS, TPU, HIPS, Wood • Print Speed: 20~180mm/s (suggested 60mm/s) • Nozzle Diameter: 0.4 mm • Build Size: 300 x 300 x 350 mm • Operational Extruder Temperature: Max 260°C • Operational Print Bed Temperature: Max 90°C • Printer Dimensions: 720 x 715 x 665 mm • Input Formats: .STL, .OBJ, .DAE, .AMF • Connectivity SD Card, Data cable	2	Mesin Fabrikasi Workshop Capstone
21	ALDO DM 320 G MESIN DRILLING MILLING BOR DRILING FRAIS MILING DM320G	Specification : Motor power : 750W Max drilling capacity : 32 mm Max end milling capacity : 20 mm Max face milling capacity : 63 mm Spindle speed : 80 - 1250 rpm Spindle taper : MT3, MT4 or R8 Spindle travel : 130 mm Distance from spindle nose to table : 400 mm Distance from spindle axis to coloum : 260 mm Working table size : 800 x 240 mm Coloum diameter : 115 mm Left and right travel of worktable : 450 mm Forward and backward travel of worktable : 165 mm Vertical swivel of spindle box : 90	1	Mesin Fabrikasi Workshop Capstone
22	Heavy duty table	ukuran 60x120cm tinggi 72cm rangka meja dari pipa besi 4x4 tebal 1mm	1	Peralatan Pendukung Workshop Capstone
23	Saw Table	Jenis Saw : Table Saw - Input Daya Listrik : 1800 Watt - Kecepatan Tanpa Beban : 4.300 RPM - Diameter Mata Gergaji : 254 mm - Lubang As Mata Gergaji : 25.4 mm - Ukuran Meja : 555 x 555 mm - Tinggi Pemotongan 90 : 80 mm - Tinggi pemotongan 45 : 55 mm - Sudut Kemiringan : 45 L / 0 R - Kapasitas potong maks. di sebelah kanan : 545 mm	1	Peralatan Pendukung Workshop Capstone
24	Hand Pallette	•Memiliki 4 Pilihan Kapasitas yaitu •250 Kg / 600 lbs : Wire Rope 6x19 4mm x 15Meter Ferrule 4mm Thimble SS 5mm Cargo Hook 0.5Ton •540 Kg / 1200 lbs : Wire Rope 6x19 5mm x 15Meter Ferrule 5mm Thimble SS 6mm Cargo Hook 1Ton •1100 Kg / 2500 lbs : Wire Rope 6x19 6mm x 15Meter Ferrule 6mm Thimble SS 6mm Cargo Hook 1Ton •1600 Kg / 3500 lbs : Wire Rope 6x19 6mm x 15Meter Ferrule 6mm Thimble SS 6mm Cargo Hook 1Ton	1	Peralatan Pendukung Workshop Capstone
25	Electric welder+accessories RYU R1120	Daya Listrik maksimal 450 watt hemat listrik Duty Cycle: 60% System IGBT : System yang menghemat daya dan menstabilkan pengapian Dapat Menggunakan GENSET. Penunjukkan Ampere : Manual putaran Rated voltage 180-240V Accesoris: Kedok Las, Tang Las, Tang Massa.	1	Mesin Fabrikasi Workshop Capstone
26	Gerinda Tangan 4" Bosch GWS 060 Small Angle Grinder 4 Inch 06013756K0	Daya input terukur* 670 Watt Kecepatan tanpa beban* 12.000 rpm Diameter batu gerinda* 115 mm Ulir spindel gerinda M 10 Dimensi alat (lebar) 77 mm Dimensi alat (panjang) 263 mm Dimensi alat (tinggi) 104 mm Berat 1,8 kg	2	Peralatan Pendukung Workshop Capstone
27	Mesin Bubut Besi Westco CQ6125X750 75cm Bench Lathe CQ6125 1 Phase	Motor : 750 W (single phase) Max swing over the bed : 250 mm Max Swing over Cross Slid : 152 mm Max distance between centers : 750 mm Hole Through Spindle : 20mm Spindle Taper with Sleeve : MT3# Spindle speed (6 speeds) : 125-2000rpm Range of Longitudinal Feeds : 0.1-0.25mm Range of Metric Threads : 0.25-2.5mm Max Tool Size : 14x14mm Taper in Tailstock Spindle : MT2#	1	Mesin Fabrikasi Workshop Capstone
28	Bending machine Megatec GW 40	Bending spesification : < 25 mm Rated Voltage : 380 v Overall Dimensions : 800 x 700 x 700 mm Spindle speed : 5-10 r / min Motor power : 3 kw berat : 170 kg	1	Mesin Fabrikasi Workshop Capstone

29	Coil winding machine LY810	power voltage:single phase AC 220V 50HZ Cop motor:three phase machine 400W(1/2hp) winding displacement machine:step-servo motor Brand:LY Spindle motor: Brushless DC Numbers of cop:1 Windable wire gage:0.03-1.2mm Maximum winding width:110mm Maximum screw diameter:120mm Maximum turning speed of cop:6000circles/minute,speed adjust function Storable winding groups:999 groups Counting resolution:0.1 circle Complete appliance weight:30kg Size:510*490*450mm	1	Mesin Fabrikasi Workshop Capstone
30	Arbitrary Waveform Function Generator 25MHz, 2CH, 200MSa/s, Arbitrary Waveform Function Generator 25MHz, 2CH, 200MSa/s, 14bits, 14bits, 2Mpts Arbitrary Memory Depth, 7digits/s Rigol DG10222	2Mpts Arbitrary Memory Depth, 7digits/s Frequency Counter Standard Accessories Power Cord conforming to the standard of the country USBCable Quick guide (hard copy) Resource CD (including User's Guide and etc.) Spesifikasi 8Mpts Arbitrary Memory Depth: 25 MHz, 2CH, 200 MSa/s, 14bits, 7 digits/s Frequency Counter SiFi (Signal Fidelity) for 100% waveform replication 2Mpts or 8Mpts/CH(std.), arbitrary waveform length Standard 2 full functional Independent channels ±1ppm frequency stability, -125dBc/Hz phase noise, 200ps low jitter Built-in 8 orders harmonics generator Built-in 7 digits/s counter up to 200MHz 160 built-in pre-edited waveforms Intuitive arbitrary waveform editing software Full modulation supported: AM, FM, PM, ASK, FSK, PSK and PWM Feature and Benefits Standard 2 full functional channels Arbitrary waveform function with innovative SiFi technology Burst function Multiple analog and digital modulations Sweep function Standard harmonic generator Waveform summing function Standard 7 digits/s full function frequency counter with 200MHz bandwidth	3	Peralatan Ukur Workshop Capstone
31	Digital Storage Oscilloscope 100MHz, 2CH, 1GSa/s Rigol DS1102Z-E	Spesifikasi Digital Storage Oscilloscope 100MHz, 2CH, 1GSa/s Standard Accessories Power Cord conforming to the standard of the country USB Cable Quick guide (hard copy) 2 passive probes (150 MHz) Bundle Option "Deep Memory Option 24Mpts (1 CH)/12Mpts (2 CH)/6Mpts (4 CH)Memory MEM-DS10002 Waveform record option Real Time Waveform Record and Replay function REC-DS10002 Advanced Trigger option RS232/UART,I2C,SPI,Runt,Windows,Nlh Edge, Delay,Time Out AT-DS1000Z Serial Bus Analysis Option RS232/UART,I2C,SPI Trigger and Decoding function SA-DS1000Z" Spesifikasi Analog channel bandwidth: 100 MHz (DS1102Z-E) 2 analog channels Real-time sample rate up to 1 GSa/s Memory depth up to 24 Mpts(Std.) Up to 30,000 wfms/s waveform capture rate Up to 60,000 frames hardware real-time waveform recording and playback functions Innovative "UltraVision" technology Various trigger and bus decoding functions Low noise floor, vertical scale range: 500 uV/div to 10 V/div Various interfaces: USB Host & Device, LAN (LXI), AUX Novel and delicate industrial design, easy to use 7-inch WVGA (800x480) TFT LCD, intensity graded color display	4	Peralatan Ukur Praktikum Pengukuran Listrik