

DAFTAR KEBUTUHAN ALAT UNTUK PROGRAM PEMBINAAN PERGURUAN TINGGI SWASTA (PP-PTS) SKEMA B
PROGRAM STUDI TEKNIK MESIN & Program Teknik Elektro
FAKULTAS TEKNOLOGI INDUSTRI – UNIVERSITAS BALIKPAPAN
TAHUN 2019

No	Nama Barang	Spesifikasi Teknik	Gambar	Jumlah	Unit	Har ga
1	Furnace	Max temp [°C]: 1100; Heat-up time [mins]: approx. 28; Max. continuous operating temp. [°C] : 1000; Dimensions: Internal HWD [mm] : approx. 165 x 180 x 210; Dimensions: External HWD [mm] : 580 x 410 x 420; Temperature uniformity of ± 5 °C within HWD [mm] : approx. 125 x 140 x 140; Volume [litres] : min. 6; Max power [W] : 2000; Holding power [W] : approx. 900; Thermocouple type : K; Weight [kg] : approx. 24; 301 controller with single ramp to setpoint and process timer; Drop down door with air gap to minimise external temperature; Delayed start / process timer function as standard; Vacuum formed, low thermal mass insulation; Hard ceramic hearth fitted as standard; Ventilated via top mounted ceramic chimney. Include : Crucible Qty : 10 pcs b Capacity 3 liter; Temperature max. range: 100oC to 1200oC; Dimension: External W390 x D480		1	Pcs	
2	Timbangan Analitik	Capacity: 220 g; Minimum display: 0.1 mg; Pan size: $\varnothing$ 91 mm; Repeatability : ? 0.1 mg; Linearity : $\pm$ 0.2 mg; Durable, high-performance aluminum alloy mass sensor, Automated calibration can be started by pressing keys.		3	Pcs	
3	Startup System Training Panel	Perangkat ini berfungsi untuk pelatihan pengajaran dan pemeliharaan teoritis sistem startup pada kendaraan lengkap dengan struktur dan pengoperasian sistem startup. Basic Parameter: 1.Size: approx. 1600mm x 700mm x 1700mm (length x width x height); 2.External power supply: A.C. 220V $\pm$ 10% 50Hz ; 3.Operating voltage: 12V DC ; 4.Operating temperature: – 40°C to +50°C; Basic configuration (unit): Detection control panel With various detection terminals, color circuit and operating principle diagrams, Ignition switch, Starter assembly Toyota corolla		5	Unit	

		1.8, Components of the starter assembly, Startup relay, Neutral switch, Fuse, Voltmeter 0 – 30 V, Ammeter 0 – 500 A, Accumulator 46B24SR, 12 V 45 Ah, and 550 CCA, Master power switch 50A, Intelligent fault-setting and appraisal system FXB-688, Movable framework (with self-retention wheels) approx. 1600mm × 700mm × 1700mm (length x width x height); Equipped with intelligent fault setting and appraisal system, include fault setting, troubleshooting and assessment functions etc. 1) The system employs patented, stable and anti-virus digital integrated circuit board and the latest MCU technology and associated fault setting control technology. 2) Independent test and appraisal can be performed without a computer. The teacher and student interfaces are separated. Teachers enter the teacher interface to provide test paper and the students answer questions on the ordinary interface. 3) High resolution 3.8-inch 0.225 x 0.225 LED monitor, English menu interface. 4 operation keys make the operation simple and quick.				
4	Ignition System Training Panel	Perangkat ini berfungsi untuk pengajaran teoritis dan pelatihan pemeliharaan system pengapian pada kendaraan dimana menunjukkan struktur dan pengoperasian system pengapian mesin berdasarkan komponen nyata dari enam sistem pengapian, termasuk sistem pengapian mekanis, sistem pengapian elektronik efek balok, system pengapian elektronik pemicu magnetik, sistem pengapian elektronik pemicu optik, sistem pengapian tanpa distributor (Setiap server koil pengapian dua busi), system pengapian tanpa distributor (Coil-On-Plug). Technical parameter: Size: approx. 2400 mm × 700 mm × 1900 mm (length x width x height), External power supply: A.C. 220V ± 10% 50Hz, Operating voltage: 12V DC, Operating temperature: – 40°C to +50°C ; Basic configuration (unit): Detection control panel, With various detection terminals, color circuit and operating principle diagrams, Contact-controlled ignition system, The ignition system of Changan, including an ignition switch, an ignition circuit, a distributor, and a spark plug, Hall electronic ignition system, The ignition system of Volkswagen Jetta, including an ignition switch, an ignition circuit, igniter, a distributor, a spark plug, and a Hall sensor, Magnetic induction ignition system,		5	unit	

		The ignition system of Toyota 8A-FE, including an engineer control unit (ECU), an ignition switch, and a distributor, Photoelectric sensing ignition system, The ignition system of Nissan, including an engineer control unit (ECU), an ignition switch, a distributor assembly, high tension line, and a spark plug, Non-distributor grouping ignition system, The ignition system of Toyota 5S-FE, including an engineer control unit (ECU), an ignition switch, a crankshaft position sensor, an igniter assembly, and a spark plug, Distributorless independent ignition system, The ignition system of Volkswagen Passat 1.8T, including an engineer control unit (ECU), an ignition switch, an igniter assembly, a spark plug, and a crankshaft position sensor, Manual driving mechanism, Crankshaft position sensor and signal wheel, Fuse, Intelligent fault-setting and appraisal system, Movable framework (with self-retention wheels) approx. 2400mm × 700mm × 1900mm (length x width x height)				
5	Analogue Display Hydraulic Universal Testing Machine	Feature: These frames feature dual spaces so users can quickly change between tension and compression testing without having to remove heavy fixtures. Control console with integrated digital meter, hydraulic power pack, precise electronic loading regulator and unloading valves. Extra-length screws and columns, with an adjustable lower crosshead, to increase the available test space for longer test samples. With digital displacement transducer for the best positioning and measuringaccuracy. Accessories:Play frame; Control console; Controller and sensor;Three sets of sample jaw; Bend support saddle;Bend pressure energy; Spheric compression plate;Lower compression plate; Top board; Ground screw and nut; Inner hexagon spanner; wire powercord; O type gasket;Cruciform screw driver; Double offset ring spanner;Other accessories full sets. Specification: Play frame Main frame size 740X580X2045mm Machine model WA-300B Max. Technical testing power 300KN parameter Precision grade 1 testing power Max. tension distance		1	unit	

		620mm Compress distance 0-380mm Clamp diameter of round specimen Φ 0-32mm Clamp thickness of flat specimen 0-15mm Clamp width of 80mm flat specimen 160mmX160mm size of compression plate Bending stick distance is 350mm Bending stick width 140mm Bending degree allowance 100mm Controller size 620x560x1560mm 1.5KW oil pump power Distortion testing device Staff Overload protection 2-5% Weight 1800kgs 2300kgs 3000kgs Max. lift speed of testing board 70mm / min Ex. Import Dilengkapi surat Dukungan dari distributor Melengkapi LOA				
6	Welding Machine	Feature: Small size light weight, high quality and energv saving. Good arc-starting and arc force, stable arc and little spattel. High welding quality, deep penetration. Auto protection of over-voltage and over-current. Be able to work continuously, it can balance automatically when voltage is fluctuation. Suitable for welding all kinds of basic welding rod. Technical Data: Power voltage(V) 120/230 Rated input power(KVA) 7-Mar Input voltage frequency(HZ) 50/60 No-load voltage(V) 76 Output current range(A) 30-110/30-200 Rated output Voltage(V) 24.4/28 Duty cycle(%) 80/25 Efficiency(%) 85 Insulation class F Weight(KG) 11 Measurement(MM) 460x270x345 Protection class IP21S Usable electrode(MM) 1.6-2.5/1.6~4.0 Including Instruction Manual		5	Unit	
7	Mesin CNC	High Precision Spindle Precision ballscrews Rugged Construction assure rigidity				

		Hardened and Ground Slide Ways Include, CNC Controlled lathe machine perfect for Industry Include, Precise Machining and Central Lubrication Include, Servo Motor for X Axis and Z Axis Include indent motor_power 5.5 KW spesification Swing over Bed Dia 360 mm Distance Between Center 750 mm Swing Over Cross slide range 180 mm Spindle Bore Dia 57 mm Bed width 320 mm Headstock Spindle speed range 60 - 2600 Rapid Speed of X Axis 6000 mm/min Rapid Speed of Z Axis 8000 mm/min Tailstock Taper MT 4 Tailstock Quill Stroke 120 Tails Stock Quill Diameter 60 mm Main Motor 5.5 kW Connection Voltage Three phase 380V Standard Accesories : 3 jaw chuck Include Automation 4 station tools changer Include Inverter main spindle Include Coolant system Include CNC Control System : FANUC Tidak termasuk biaya kirim dan instalasi type CNC Lathe Machine dimension_length 230.00 dimension_height 180.00 dimension_width 170.00 dimension_uom CM dimension_unit 210X150X160CM netto_weight 1700.00 KG weight 2040.00				
8	3D Printing	Print Size 115*65*155 mm Sudah terakit, siap pakai Upgraded Mainboard untuk hasil print lebih bagus Updated Touch Screen Interface Plug & Play dengan layar 2K Display Easy Leveling Preview Model di Layar sebelum print Layar Touch Screen Display Proses printing real time di layar		2	unit	

		Print Technology : DLP X and Y Axis Resolution : 47 microns Z Axis Resolution : 1.25 microns Suggested Layer Thickness : 25-100 microns Suggested Print Speed : 10-20 mm per hour Light Source : UV LED (405 nm Wave Length)				
9	Drawing Table	interactive Pen Display; 21.5"; Full HD 1920 x 1080 Native Resolution; USB		10	unit	
10	IoT Smart Server	Broadcom BCM2837 1.2GHz Cortex-A53 Quad-core; 1GB LPDDR2 SDRAM; MicroSD 8GB; USB A Type 4 ports; Micro USB socket 5V, 2A; .5mm A/V Jack; HDMI 1.4 Video; 10/100 Base T; 802.11n, Bluetooth 4.0; 40EA GPIO (2x20 2.54mm Pitch Header) Size approx. 116x56mm; Module RSP Shield: 40EA GPIO (2x20 2.54mm Pitch Header), 8ch 12bit Analog to Digital Converter; Module Sensor Modules: PIR: RE200B, Sensing Range 110 Degree, Sound Sensor: Microphone, ambient sound detection, sound level detection, Humidity Temperature: DHT11, temperature and humidity sensor, ambient temperature and humidity detection, UltraSonic: HC-SR04, 2~500cm distance measuring range, 40kHz Frequency; Light Sensor: CdS, Variable Resistor: 1kΩ; Tilt Sensor: Contact Resistance : 50mΩ max; Mercury Sensor; Reed Sensor; IR obstacle Sensor; Flame Sensor; Touch Sensor TTP223; Photo Diode FC33; Hit Sensor SW-420; Dust Sensor: GP2Y1014AU0F; Gas Sensor MQ-2; Soil Moisture; IR Tracking Thermistor; Temperature Sensor : LM35; Limit Switch;		5	Unit	

		Knock Sensor; Relay; Module Actuator Modules: LED Module, DC Motor, Step Motor, Switch Module Tact Button, Laser Module, RGB LED; Education Contents : Overview of IoT, Configuring IoT Smart Server and Practice Environment, Practice for Smart Sensor Control Using Raspberry Pi, Remote Control Using Bluetooth, Web Server Construction Using Lighttpd, Remote Control Using PHP, Configuring Interface Using JavaScript, Module Raspberry Pi 3B				
11	HBE - LogicLab-D	Power:+5V (Embedded Current Protection Circuit), +9V, +15V, -15V Frequency Generator: 0Hz~1MHz, Display : 7-Segment (3 Digit) & LED (Hz, kHz, MHz), Control : Rotary SW(3) & Toggle SW(1) Waveform Generator: 0Hz ~999Hz, Display : 7-Segment (3 Digit) & LED (Sine Wave, Triangle Wave), Control : Rotary SW(3) & Toggle SW(1) DAQ: 8bit Input, 8bit Output, PC Data Interface LED: 5mm High brightness LED 8EA FND: BCD Input 7-segment (Anode, Cathode) 2EA Logic Signal: Rising Edge & Falling Edge 1EA Single Pulse: 1ms Single Pulse Generator 1EA Toggle Switch: User Toggle Switch 12EA Button Switch: User Button Switch 3EA Variable Resistor: 10k? 1EA, 500k? 1EA Buzzer: Input 5V, Output 2.4kHz Piezo: Input range 20Hz ~22kHz Volt Meter: DC 0 ~15V 1EA Ampere Meter: DC 0 ~ 1A 1EA Bread Board: Terminal Strip 3EA & Bus Strip 4EA Board Size: Base : 336 x 273(mm), Base Board : 167 x 146(mm)		1	unit	

12	Digital logic circuits equipment	Digital logic circuits equipment: HBE-LogicCircuit-Digital is composed of I/O port, Logic module and 74 series module for all the tests included in Digital Logic Circuit textbook. And we can see test results through PC program provided with the equipment. Base Input: DIP Switch 8bit 4EA, Slide Switch 12EA, Button Switch 4EA Pulse Generator 0.2~1kHz, Pull-up Register 16EA, Pull-down Register 16EA Output: LED 16EA, FND-Anode Common 1EA, FND-Cathode Common 1EA Logic Circuit Design Block: Logic Module Block(4 x 4) 16EA DAQ: 8bit Data Input/Output, USB communication Power: Input AC 220V/Output DC +5V/4A Board Size: 450mm x 320 mm (except for a case size) Logic Circuit Block Basic Gate: Dual NOT Gate Module(7404) 3 EA, Dual AND Gate Module, Dual OR Gate Module, Dual XOR Gate Module(7486), Dual NAND Gate Module(7400), Dual NOR Gate Module Logic gate: Half adder Module, Half subtracter Module, Full adder Module 74 Series: 4bit adder Module 4 bit comparator Module 8x3 Encoder Module 3x8 demultiplexer Module 4x16 decoder Module 2x4 decoder Modul 8x1 multiplexer Module BCD-decimal Encoder Module 7-segment decoder Module Register: Dual D flip-flop Module(7474) Dual JK flip-flop Module Size:		1	unit	