

**Kerangka Acuan Kerja**  
**Pengadaan Alat Laboratorium Fakultas Perikanan dan Ilmu Kelautan**  
**Universitas Padjadjaran**

**A. Latar Belakang**

Universitas Padjadjaran merupakan salah satu perguruan tinggi negeri di Indonesia yang memiliki salah satu rencana strategis meningkatkan kualitas dan keunggulan SDM yang berdaya saing global yang disesuaikan dengan tuntutan, tantangan dan perubahan internal maupun eksternal yang semakin kompleks seiring dengan era Revolusi Industri 4.0. Hal ini tertuang dalam Renstra Unpad periode 2020-2024, yang didasarkan pada transformasi Unpad setelah menjadi Perguruan Tinggi Negeri Badan Hukum (PTNBH). Unpad berorientasi kepada pengembangan kualitas dan kompetensi SDM, keunggulan akademik berstandar internasional, Common Goals (CGs) Provinsi Jawa Barat dan Indonesia serta rekognisi global.

Laboratorium merupakan salah satu fasilitas utama dalam mendukung kegiatan akademik, penelitian, dan pengabdian kepada masyarakat di Fakultas Perikanan dan Ilmu Kelautan. Kegiatan akademik, seperti praktikum mahasiswa, menuntut adanya alat-alat laboratorium yang sesuai dengan perkembangan teknologi terkini, Kondisi ini tidak hanya berdampak pada kualitas pembelajaran dan penelitian, tetapi juga menghasilkan inovasi yang berdampak pada masyarakat luas. Oleh karena itu, diperlukan pengadaan alat-alat laboratorium baru yang mampu menunjang kegiatan akademik, penelitian, dan pengabdian kepada masyarakat secara optimal.

**B. Maksud dan Tujuan**

Maksud dan tujuan dilaksanakannya pengadaan ini adalah untuk :

1. Meningkatkan kualitas sarana dan prasarana laboratorium di Fakultas Perikanan dan Ilmu Kelautan
2. Meningkatkan daya saing fakultas di tingkat nasional dan internasional melalui penyediaan alat yang berkualitas.
3. Memenuhi target Unpad menuju 300 universitas terbaik dunia

**C. Ruang lingkup pekerjaan ini.**

1. Volume dan spesifikasi Teknis sesuai yang disyaratkan;
2. Barang terpasang dan dapat berfungsi dengan baik;
3. Garansi barang sesuai yang disyaratkan.

**D. Volume dan Spesifikasi Teknis**

No	Nama Alat	Spesifikasi	Volume	Satuan
1	Mikroskop binokular	Head : Binocular 30° inclined and rotatable 360° Eyepieces : 10x 20mm FOV Nosepiece : Reversed, quadruple Objectives : Plan Achromat 4x, 10x, 40x, 100x Oil Condenser : 1.25 N.A. Stage : Rackless mechanical stage Focusing : Coaxial coarse/fine focus system with limit stopper and torque adjustment Focusing : Coaxial focusing system with an adjustable tension control and upper limit stop to prevent accidental damage to slides; all metal gears, brass fine focus gear Illumination: LED Illumination variable with cord holder	6	Unit

2	Mikroskop yang dihubungkan dengan kamera	Viewing Head (inch) 10 display screen Illumination LED Illumination, Brightness Adjustable Objective Plan Achromatic )bjective : 4x, 10x, *20x, 40x, 100x Nosepiece Quadruple Nosepiece/*Quintuple Nosepiece Stage Double Layers Mechanical Stage 120X115mm/ 70X30mm Condense Abbe Condenser N.A. 1.25 with Iris Diaphragm & Filter Focusing System Coaxial Coarse and Fine Adjustment, Fine Division 0.002mm, Coarse Stroke 37.7mm per Rotation, Fine Stroke 0.2mm per Rotation, Moving Range 20mm Video Adapter C Mount 0.5x	1	Paket
3	Laminar Air flow untuk pengerjaan Bakteri dan Virus	Spesifikasi laminair air flow : 1. Dimensi : 120x85x120 cm 2. Rangka : Plywood di lapiasi High Pressured Laminated (HPL) 3. Dinding Luar : Plywood di lapiasi High Pressured Laminated (HPL) 4. Dinding Dalam : Plywood di lapiasi HPL (High Presured Laminated) 5. Top Meja / Meja Kerja : stainless 304 6. HEP filter ukuran 305x305 efisiensi 99,999 % Certificate 7. Blower / Fan merk CKE 1/4 hp 8. System Instalasi Listrik : Broco, Philips dan Kabel Standard Indoensia ( Etterna) 9. Penerangan di tempat kerja dengan lampu TL (18 watt), Warna putih dan disesuaikan untuk netral pada saat bekerja dan lampu UV (15 watt). 10. Sash pintu kaca, dengan naik turun max 55 cm dan tebal kaca 5 mm	1	Unit
4	Neraca Analitik	Maximum Capacity 220 g Readability 0.001 g Pan Size 120 mm Item Number 30428794 Internal Calibration InCal™ - Semi Automatic Draftshield Included Auxiliary Display Model Available as an Accessory Battery Life Not Applicable Communication RS232; USB Dimensions 309 mm x 321 mm x 209 mm (HxLxW) Display 2-Line LCD with Backlight In-use cover Included Net Weight 10 lb (4.5 kg) Pan Construction Stainless Steel Power AC Adapter (Included) Stabilization Time 2 s	1	Unit
5	Inkubator shaker	Precise Shaking Incubators, ThermoStable™ IS-30, Front Door-type, up to 60C, 0.2C with Universal Platform, Fuzzy Control, Orbital Motion, Advanced Shaking Mechanism, Precise Speed Control, 30~250 rpm	1	Unit
6	Inkubator Rack	Laboratory Equipment Test Tube Rack Stainless Steel Tube Rack (d=16mm), 50 wells, KJ-812	2	Unit

7	Freezer -20oC	Dimension : 1105 x 625 x 845 mm Temperature : ≤ -20°C Capacity : 350 Liter Power : 220 Watt Refrigerant : R290 Voltage : 220 V/50Hz Weight : 43Kg	1	Unit
8	Refrigerator	Origin : Hand Tool Parts Origin : Mainland China Place Of Origin : Shandong, China Brand Name : Biobase Model Number : Bpr-5V100(G) Instrument Classification : Class II : 1 Year After-Sale Service : Online Technical Support Product Name : 2~8 Celsius Laboratory Refrigerator Capacity : 100L Temperature Range : 2~8 Temperature Accuracy : 0.1 Control System : Microprocessor Control Alarm : Audible Andvisual Alarm Refrigeration Type : Forced Air Refrigeration System Refrigerant : R600A Climate Type : N, Sn Gross Weight : 61Kg	1	Unit
9	Thermal Cycler (Mesin PCR)	Classification: Laboratory Thermostatic Devices Capacity: 3*(32*0.2ml )Tube: 0.2ml single tube Temperature Range: 0-100°C Uniformity: ≤±0.2°C Accuracy: ≤±0.3°C Display Resolution: 0.1°C Temperature Control: Block\Tube MAX. Heating Rate: 4.5°C/s MAX. Cooling Rate: 4°C/s Ramping Rate Adjustable: 0.1-5°C Number of Programs: 10000 +(USB FLASH) Hot Lid Temperature: 30~110°C	1	Unit

10	Mikrosentrifuga	<p>Specifications of D3024</p> <ul style="list-style-type: none"> <li>- Max. Speed : 15000rpm(200-15000rpm), increment:10rpm</li> <li>- Max. RCF : 21380g, increment:10g</li> <li>- Speed Accuracy : 20 rpm</li> <li>- Rotor Capacity : 5mL18, 5mL culture tubex12 0.2mL/0.5mL/1.5mL/ 2mL24, 0.5mL36, PCR84</li> <li>- Run Time : 30sec-99min/Continuous</li> <li>- Motor : Brushless DC moto</li> <li>- Safety Devices : Dual door interlock, Over-speed detection, Automatic internal diagnosis</li> <li>- Power : Single-phase,AC220V-240V, 50Hz/60Hz, 5A, AC110V-120V, 50Hz/60Hz, 8A 200W</li> <li>- Acceleration / Braking time [Sec] : 25s25s</li> <li>- Dimension [DWH] : 280364266mm</li> <li>- Weight : 12kg</li> <li>- Certification : CE cTVus FCC MCA</li> <li>- Advanced Features : Speed/RCF switch; Short-time run function; sound-alert function</li> <li>- Noise Level : 64dB</li> </ul>	1	Unit
11	Chamber Elektroforesis	<p>Tangki Elektroforesis Horizontal Ukuran: 9 x 20 x 6 cm</p>	1	Unit
12	Microwive	<p>Range Temperature : Suhu Kamar +10~ 250*C Akurasi : 0.2*C Dimensi Dalam (PxLxT) : 415 x 370 x 340 mm Dimensi Luar (PxLxT) : 560 x 540 x 680 mm Vacuum : 133pa Voltase : 220 V Daya : 1400 W Timer : 0-9999mnt</p>	1	Unit
13	Autoklave	<p>Spesifikasi Produk :</p> <p>VOLUME : 75L CHAMBER SIZE : 400*625mm DIMENSIONS mm : 575*565*1080 BASKET DIMENSION : 360*280mm BASKET UNIT : 2 VOLTAGE LEVEL : 220V/50HZ RATE PRESSURE : 0.22MPa RATE TEMPERATURE : 50-134°C POWER : 4.5KVA</p>	1	Unit

14	Spektrofotometer	WL Range : 200 - 1000 nm WL Accuracy : 2 nm WL Repeatability : 1 nm Spectrum Bandwidth: 4 nm Transmittance Accuracy : +/-0.5% (t) (NBS930D) Transmittance Repeatability : 0.2% (t) Transmittance Measuring Range : 0 - 100 T Absorbance Measuring Range : 0 - 2 A Stray Light : 0.3% (t) At 220 nm, NaI Drift : 0.5% (t)/ 3mnt Signal Noise : 0.2T% Cell Holder : 10 mm Voltage : 220VAC/50HZ Power : 150 W	1	Unit
15	Nanodrop	Optical Geometry: Reflec di:8°, de:8°(diffused illumination, 8-degree viewing angle) Integrating Sphere Size: 48mm Light Source: Combined LED Light Spectrophotometric Mode: Concave Grating Sensor: 256 Image Element Double Array CMOS Image Sensor Wavelength Range: 400-700nm Wavelength Interval: 10nm Semiband Width: 10nm Measured Reflectance Range: 0-200% Measuring Aperture: Customized A8mm/4mm/1×3mm Specular Component: SCI&SCE Color Space: CIE Lab, XYZ, Yxy, LCh, CIE LUV, Hunter LAB Color Difference Formula: $\Delta E^*_{ab}$ , $\Delta E^*_{uv}$ , $\Delta E^*_{94}$ , $\Delta E^*_{cmc}(2:1)$ , $\Delta E^*_{cmc}(1:1)$ , $\Delta E^*_{00v}$ , $\Delta E$ (Hunter) Other Colorimetric Index: WI(ASTM E313, CIE/ISO, AATCC, Hunter), YI(ASTM D1925, ASTM 313), TI(ASTM E313, CIE/ISO), Metamerism Index MI, Staining Fastness, Color Fastness, Color Strength, Opacity, 8° Glossiness Observer Angle: 2°/10° Illuminant: D65, A, C, D50, D55, D75, F2, F7, F11 Displayed Data: Spectrogram/Values, Samples Chromaticity Values, Color Difference Values/Graph, PASS/FAIL Result, Color Offset Measuring Time: 2.6s Repeatability: MAV/SCI: $\Delta E^* \leq 0.05$ Inter-instrument Error: MAV/SCI: $\Delta E^* \leq 0.2$ Measurement Mode: Single, Average Locating Method: Camera View Finder Display: 3.5-inch TFT color LCD, Capacitive Touch Screen Data Port: USB, Bluetooth 4.0 Data Storage: Standard 2000 Pcs, Sample 20000 Pcs Power source: Li-ion battery. Illuminant Life Span: 5 years Dimension: 184×77×105 mm Weight: 600g	1	Unit
16	UV Transiluminator	1. Panjang Gelombang: 470nm 2. Ukuran Gel: 100 * 160mm 3. Dimensi: 210 * 210 * 30mm 4. Berat Bersih: 2.3kgs 5. Power DC: 24V 0.65A	1	Unit

17	Waterbath	<p>Controller: PID  Sample Hole: 2  Range Temp.: RT +5~100°C  Temp. motion: ± 0.5°C  Temp. Resolution: 0.1°C  Temp. uniformity: ± 1°C  Capacity: 6L  Operation function: Fixed temperature operation, timing function, aut stop  Timer: 0-9999 min  Safety: Over temperature alarm  Sensor: NTC  Chamber Dimension: 300x135x150mm  Product Dimension: 318x168x210mm  Chamber Material:SS 304  Voltage: 220V / 50Hz  Power: 500W</p>	1	Unit
18	Hotplate with magnetic stirrer	<p>Specification  Max. Volume 3000mL or 3L  Stir Speed : 100 - 2000 rpm  Temperature Range : up to 380c  Exterior: Cast aluminium, Surface spraying  Plate Size : 170 x 170mm  Power : 220V/500W</p>	1	Paket
19	Blower	<p>Power: 60 watt  Air Flow: 6600 liter/jam  Pressure: 0.032 Mpa  Air Divider Outlets: 30ways (3 x 10 cabang = 30 cabang)  Dimension: 30x23x22cm (PxLxT)  Dilengkapi peredam suara dan filter penyaring debu</p>	2	Unit
20	Akuarium	<p>Bahan : Fiber Glass  Tebal : 3 mm  Volume 60 liter  Ukuran : 600 x 300 x 360 mm</p>	50	buah
21	Bak Fiber	<p>Bak Fiber 150x100x50cm sekat filter 20cm dengan 4 chamber dan sudah termasuk pembuangan Volume 500 Liter</p>	4	buah

22	Curren Meter	<p>Batang telescoping 1,2 meter, tas pembawa dan dua sensor aliran; satu untuk air dan satu lagi untuk udara.</p> <p>Spesifikasi :</p> <p>Flowatch Kit Berat (Unit Display): 8,3 oz (230 g)</p> <p>Dimensi (Unit Tampilan): 2,5 " 2,5" 5,1 "(6,4 6,4 13 cm)</p> <p>Dimensi (Termasuk Kasus): 25 " 13.5" 3.5 "(63.5 34 9 cm)</p> <p>Flow Speed Unit: km / jam, mph, knot, m / s dan cm / s</p> <p>Kecepatan Arus Akurasi: +/- 5% dari - 10 hingga + 50 C</p> <p>Rentang Kecepatan Aliran: 2 hingga 150 km / jam</p> <p>Temp Unit: C, F dan windchill</p> <p>Temp Accuracy: +/- 1</p> <p>Fungsi Temp: Arus, minimum, rata-rata, suhu maksimum dan faktor windchill</p> <p>Kit Termasuk</p> <p>Data umum:</p> <p>Bidang aplikasi:</p> <ul style="list-style-type: none"> <li>- Ukur aliran sungai</li> <li>- Arus laut</li> <li>- Aliran limbah</li> <li>- Studi hidrologi</li> <li>- Cerobong asap</li> <li>- Saluran irigasi</li> <li>- Saluran AC</li> <li>- Poros ventilasi</li> <li>- Studi aerologis</li> </ul>	1	unit
23	Snorkel	<p>Spesifikasi :</p> <ol style="list-style-type: none"> <li>1. Quick clip attachment to mask strap;easy;</li> <li>2. clip release;</li> <li>3. quick tube release;</li> <li>4. vertical adjustments;</li> <li>5. 360° vertical rotation;</li> <li>6. 360°horizontal rotation</li> <li>7. 100% Superdry Top (patented).</li> <li>8. Long semi-rigid breathing tube, with bottom relief valve for instant purging.</li> <li>9. "Multi Clip" with special new tube clip.</li> </ol>	5	unit
24	Wetsuit	<p>Reef Mens Monosuit is a thinner 3 mm, full-length, steamer suit to protect you while snorkelling or diving in warmer waters and months from marine bumps and scrapes plus the tropical sun. Soft and flexible neoprene allows you to move in the water without being bulky or requiring a lot of lead to get down.</p> <p>Reef Steamer has long arms and long legs which will also protect you from sunburn and stingers. It has a rear Zip closure that is durable and will last with the correct care. Cut specifically for the Male body, this Mares Reef steamer hugs the body in all the right ways and in the right areas. Making sure a wetsuit fits correctly is a huge must as if it is too big then it defeats the purpose as a wetsuit is designed to be a second skin and be as tight as possible.</p> <p>Ukuran L (5 buah) Ukuran M (5 buah)</p> <p>FEATURES.</p> <ul style="list-style-type: none"> <li>- New, modern design with shoulder grip area</li> <li>- Cool, stretchy and ideal for temperate water</li> <li>- Ergonomic, comfortable Velcro closure and back zip puller</li> <li>- Wrist, ankle and neck seals enriched with Aquastop finish</li> <li>- Also suitable for multiple watersports</li> </ul>	10	Buah

25	Scuba tank	<p>Durable, Long-lasting, Safe Scuba cylinders  Our cylinder is made of Proprietary 6061 alloy, which is a balanced aluminum-magnesium-silicon blend.  All Cylinders are cycle-tested over 100,000 times at service pressure to ensure the best endurance and reliability throughout the usage of the cylinder.  Testing pressure up to 2.5 times service or working pressure.  Made in USA, manufactured to US DOT standard (Department of Transport)  Corrosion-resistant interior and exterior with Thick, damage-resistant walls.  Working pressure 3300psi while most existing cylinders has 3000psi working pressure*. That's 10% higher then other cylinders.  Each cylinder comes with certificate of material and DOT requirement standard.  Choice of Standard and Neutral-Balance cylinder.  Nitrox ready** : Semua tabung kami siap untuk menggunakan Nitrox hingga 40%**.</p> <p>Service Pressure : 3000 psi / 207 BAR  Air Capacity : 77.4 ft<sup>3</sup> / 2798 Liter  Diameter : 7.3" (inch) / 18.41 cm  Lenght w/o Valve : 26.06" (inch) / 66.19 cm  Empty Weight : 31.3 lbs / 14.2 kg  Water Volume : 678.0 in<sup>3</sup> / 11.1 Liter  Weight w/o Valve : 24.44 lbs / 11.09 kg  Buoyancy at Sea (Full) : -1.4 lbs / -0.64 kg  Buoyancy at Sea (Half) : 1.5 lbs / 0.68 kg  Buoyancy at Sea (Empty) : 4.4 lbs / 2 kg  Thread Size : 0.750-14 NPSM M25 x 2.0</p>	10	Buah
26	BCD (Buoyancy Control Device)	<p>Ukuran sesuaikan dengan kebutuhan  <b>LIGHTWEIGHT</b>- Weighing only 5kg in size S/M, the Magellan BCD delivers 18.5kg of lift.  - <b>ROBUST CONSTRUCTION</b> - The body of the BCD is constructed from rugged 420 Cordura Nylon with Radio welded seams ensuring long-term durability. The weight pockets are reinforced with tough polyester and ABS plastic ensuring the don't fail, even after years of diving.  - <b>SIMPLE INTEGRATED WEIGHT SYSTEM</b> - The Magellan features integrated weight system using quick releases for easy adjustable of weight.  - <b>WEIGHT POCKETS</b> - Included weight pockets vary in size depending on the size of the BCD. XL includes two 13lbs (6kg) capacity pockets and 9lbs (4kg) for the M/L and XS/S.  - <b>BACK MOUNTED TRIM WEIGHT</b> – The Magellan allows for rear mountain weight pockets, allowing you to distribute weight around your body more evenly.  - <b>LARGE FOLDING POCKETS</b> - A large folding and self-draining pocket is positioned on the right side of the cumberbund to store important items.  - <b>ALUMINIUM D-RINGS</b>- Two 40mm D-Rings below the weight pockets, and two 25mm D-Rings on the shoulder straps.  - <b>3 Pull-Dump/Overpressure Relief Valves</b> - The Magellan features 3 pull-dump valve  <b>WEIGHT BCD:</b>  XXS/XS = 2,3kg / S/M = 2,3kg / L/XL = 2,4kg  <b>BUOYANCY BCD:</b>  XXS/XS / S/M / L/XL = 180N (18,3kg)</p>	10	Buah

27	Regulator Selam	<p>Stainless steel springs  Piston Regulator 1st STAGE  Maximum working pressure 3,500psi(232bar)  Intermediate pressure output 135-145PSI  Four 3/8-24 UNF-2B intermediate pressure ports  One 7/16-20 UNF-2B high pressure port  Chromium plated brass body  Stainless steel springs  Weight : 727 gram</p>	10	Buah
28	Ekman Grab	<p>Standard size L152xD152x152cm PROTIRTA Complete with stainless steel sling plastic coated, messenger and PVC carrying case HIGH QUALITY EKMAN GRAB SAMPLER LEG-150S EKMAN GRAB SAMPLER/BOTTOM GRAB SAMPLER Model LEG-150S [ Standard Size] Ukuran box : 152x152x152mm/6"x6"x6" Volume capacity 3.5iters Fiture • Scoops overlap to reduce samples loss • Dependable release closing • Stainless steel construction • Lightweight yet stable due to wide base • Extra weight available • Center pivot for low bottom disturbance • 20meter line with steel sling coater plastic for strong Ekman Grab Sampler • Ekman Grab sampler LEG-150S ready to use with assembly • Complete with Heavy Duty PVC carrying Box rush resistant even in sea water EKMAN GRAB SAMPLER/BOTTOM SAMPLER LEG-150S Model : LEG -150S (Standard Model) Box size : 152 X 152 X 152 mm ( 6" x 6" x 6 #34; ) Volume of box : 3.5 L Weight : 3 Kg Sample area : 232 cm2 Include : Line 20meter steel sling with plastic coated. Massagers 500gam and PVC Carrying Box</p>	1	Buah
29	Regulator Selam	<p>Tahap Pertama (First Stage):  Model: MR12 dengan desain diafragma seimbang (balanced diaphragm). Sertifikasi: Bersertifikat CE EN 250:2000 untuk penggunaan hingga kedalaman 50 meter. Kesesuaian Air Dingin: Memiliki sertifikasi tambahan untuk penyelaman di air dingin (&lt;10°C) oleh RINA 0474.  Tahap Kedua (Second Stage):  Material: Konstruksi sepenuhnya dari logam untuk meningkatkan daya tahan dan kinerja. Desain Kompak: Ukuran kecil dan ringan untuk kenyamanan selama penyelaman.  Tombol Purge Besar: Dilengkapi dengan tombol purge yang diperbesar untuk memudahkan penggunaan</p>	5	Buah
30	Octopus	<p>prevents free flow in the event of strong currents and is made of durable rubber that can withstand over 113,000 venting cycles. The patented Mares Vortex Assisted Design (VAD) system combined with the Fluid Dynamic Deflector (FDD) allows for natural breathing at all depths.</p>	5	Buah
31	WWeight Belt	<p>bahan Stainless Steel  Webbing Diving Weight Belt Features:  - Approx 1.35m heavy duty 50mm webbing  - Sturdy, reliable stainless steel buckle  - For use with Lead Blocks</p>	5	Buah

32	Fin	<ul style="list-style-type: none"> <li>- Comfortable Foot Pocket</li> <li>- Rubberized Side Ribs</li> <li>- Blades Construction Optimizes Efficiency</li> <li>- 2 Channel Design For Added Propulsion</li> <li>- Durable Constraction</li> <li>- Constructed for optimum efficiency and maximum propulsion</li> <li>- Super-soft foot pocket keeps you comfortable all day long</li> <li>- Durable construction for years of use</li> <li>- Ideal entry-level swim fin for snorkelers, divers, and swimmers</li> <li>- Speed through the water like a dolphin</li> <li>- Ukuran disesuaikan dengan kebutuhan</li> </ul>	5	Buah
33	Google kaca mata selam	<p>Ukuran M = 5,L= 5</p> <p>Bi-material frame</p> <ul style="list-style-type: none"> <li>- Medium-sized silicone face piece</li> <li>- Wide viewing angle</li> <li>- Possibility of optical lenses"</li> </ul> <p>Optical lenses are available for this model, with negative diopters from -1.0 to -7.0 and positive diopters from +1.5 to +3.0</p> <p>Masker Kacamata Selam Scuba Dive</p>	10	Buah
34	Refrakto Salinometer	<p>Master - S28M (Cat.No2483)</p> <p>Measurement Range: Salinity: 0 100, Proportion: 1.000 1.070</p> <p>Minimum Scale: Salinity: 1, Proportion: 0.001 Resolution: Salinity: 1 Proportion: 0.001 Material: Aluminum</p>	2	Buah
35	DO meter	<p>DO Range: 0 ~ 20.0 mg/L Oxygen in air: 0 ~ 100.0% Temp range: 0 ~ 50°C RESOLUTION: DO Range: 0.1mg/L Oxygen in air: 0.1% O2 Temp range: 0.1°C ACCURACY: DO Range: 0.4 mg/L Oxygen in air: 0.7% Temp range: 0.8°C</p> <p>Power Supply: 1× 006P DC 9V battery Dimensions: Main unit: 180 x 72 x 32 mm Oxygen probe: 290×28mm dia Weight: 335g □ FEATURE: *High precision DO mesurement. *Dual function meter and display. *Polarographic type oxygen probe. *Auto temperature compensation. *Memory recall. *Auto power-off. *Built-in temperature. * Sensor structure : The polarographic type oxygen probe with incorporated temp sensor. □ ACCESSORIES (termasuk): 1× Oxygen probe ( OXPB-11 ) 1× Carrying case 1× Operation manual. 2× COXHD-04 Spare probehead diaphragm 1× OXEL-03 Probe filling electrolyte</p>	2	Buah
36	pH meter	<p>pH - 0 to 14.00 pH, ± 1999 mV mV function for ORP electrode</p> <p>Manual temperature compensation ATC via temp. probe TP07 RS232, Hold, Record (Min/Min), °C/ °F Push button calibration Water resistant front panel Accuracy ± 0.02 pH ± 2 digit. * Professional pH/mV METER. pH range : 0 to 14 pH x 0.01 pH. mV range : -1999 mV to 1999 mV. * The instrument is with mV ( millivolt ) function for mV measurement ( Be plugged with optional ORP probe ORP-04 to be a professional ORP meter) pH meter specifications Measurement Measuring Range Resolution Accuracy pH 0 to 14 pH 0.01 pH (0.02 pH + 2 d) * Meter only mV -1999 mV to 1999 mV 1 mV (0.5% + 2 d) * Meter only Standard Accessories : - Instruction manual - PE-03 PH Electrode Optional Accessories : - ATC temp. probe, TP-07 - ORP electrode, ORP-14 - Hard carrying case, CA-06 - Buffer Solution Lutron PH-04 - Buffer Solution Lutron PH-07 - USB-01 USB Cable - Data Acquisition Software, SW-U801-WIN</p>	2	Buah
37	Scidis	<p>Bahan Hitam Putih Heavy Plastik tebal</p> <p>Diameter 280- 300 mm</p> <p>termasuk tali</p>	2	Buah

38	Botol Water sempler	Material : Bottle PVC with thick 4.5 mm, Vertical, End Seal (high quality nylon plastic), Air/drain valve (Plastic MC), Trip Assembly (High Quality Nylon and Stainless steel), Cable Assembly (Stainless Steel) and Line approx 20meter / can be requested when order Bottle Dimensions Capacity : 5.0liter Bottle diameter : 11 cm Bottle length : 75cm Complete with accessories	2	Buah
39	Digital Microscope	include 4 fully achromatic objective lenses, a mechanical stage, a 4.3" TFT color LCD touchscreen, a 5-megapixel CMOS sensor, and a 2-GB SD card for storing captured images. Magnification from 40x to 400x ( x with 4x digital zoom) makes TetraView ideal for viewing a range of cellular specimens on slides. Rotate the LCD screen up to 180 to share images with others. For a bigger audience, use the TV output to display images on a television or projector. Advanced and affordable, the Celestron TetraView is an excellent tool for classrooms, labs, and serious hobbyists. * Still or video image capture and storage * Quadruple nosepiece with 4x, 10x, 20x, and 40x objectives * Total magnification from 40x to 400x ( x with 4x digital zoom) * 2-GB SD card - SD slot supports up to 32-GB card * 3-1/2 x 3-1/2" mechanical stage for easy slide scanning * Coarse- and fine-focus adjustments * Filter wheel with 3-position diaphragm * 2.0 USB cable to upload images to a computer * Universal AC adapter; also accepts 4 AA batteries (not included) for field use * Includes 7 prepared slides, touchscreen pen, carrying case, video cable, and dust cover * Two-year limited warranty * Size, 13" H x 5-1/2" W x 7" D; wt, 4 lb	1	unit
40	Autoclave	Valid volume : 50L Working pressure : 0.22Mpa Working temperature : 134C Max. Working pressure : 0.23 Mpa Heat average : 1C Timer : 0 ~ 60min Adjustment of temperature : 105 ~ 134C Overall dimensions : 560 x 560 x 980 mm, 590 x 590 x 1080 mm	1	unit
41	Rotary Evaporator	Evaporator: Typeof cooling vertical condenser Collect flask 1000ML, Rotary Flask 2L Motor Power 40W Bath power 1000w Bath Material Stainless steelcombinedbath. Sealing Teflon + Fluorelastome . Evaporation rate 2L/ H  Chiller: Electrical requirementswatts CompressorMake: Embraco Number of compressor: one Refrigerant: R404A Cooling capacity at 0C/32F: 400 WRecirculating pumpOutput: 15 watts Pumping speed: 17 L/min or 4.5 gallon/min Capacity: 3 liters or 0.8 gallons	1	unit

42	Spectro fluorophotometer	<p>Excitation Source :  150W xenon lamp Hamamatsu,  Excitation Wavelength :200nm~900nm,  Emission Wavelength :200nm~900nm,  Excitation Slit :F97XP/F97Pro : 2nm5nm、 10nm、  20nm F97 : 10nm,  Emission Slit :F97XP/F97Pro : 2nm、 5nm、 10nm、  20nm F97 : 10nm,  Wavelength Accuracy : F97XP : <math>\pm 0.4\text{nm}</math> F97/ProF97 : <math>\pm 1.0\text{nm}</math>,  Wavelength Repeatability :F97XP : <math>\leq 0.2\text{nm}</math>  F97/F97Pro : <math>\leq 0.5\text{nm}</math>, Signal-toNoise Ratio :F97XP :  Raman peak of water (P-P) : <math>S/N \geq 200</math> 10nmSlit)  F97/F97Pro :  Raman peak of water (P-P) : <math>S/N \geq 150</math> (10nmSlit,  Limit: F97XP : <math>\leq 5 \times 10^{-11}</math> g/ml  (Quinine Sulfate Solution) F97/F97Pro : <math>\leq 1 \times 10^{-10}</math> g/ml  (Quinine Sulfate Solution),Linearity: <math>\gamma \geq 0.995</math>,  Peak Repeatability :<math>\leq 1.5\%</math>,Stability(10min) :Zero Drift : <math>\pm 0.3</math>,Value Limit : <math>\pm 1.5\%</math>,  Wavelength Scan Speed : Multi-speed Level, Maximum at 48000nm/min,  Photometric Quantity Range: 0.00-10000.00,  Data Transportation : USB2.0, Power :200W, Power Source : AC 220V/50Hz ; 110V/60Hz</p>	1	Unit
43	Digital Ultrasonic Bath	<p>Volume (L) 17.5  Ultrasonic Power (W) 300  Temperature Range (°C) +5 to 70  Operating Frequency (kHz) 32-38  Timer (minute) 0-99  Berat (Kg) 12.6</p>	1	Unit
44	Blower supercharge, instalasi aerasi, uniring	<p>Aerator : blower super charger amr500 2hp double pulley,  Inverter hnc hv 610 1 phaese 2800 rpm  Instalasi aerasi : pipa pvc 1/2" aw  Lbow 1/2" aw, T 1/2" aw,  Pipa pvc 1,5" aw, T 1,5" to 1/2", dop 1,5".  Uniring : 25mm ukuran 5 inch,  Connector 1/2",  Pemberat 3 cm, drat dalam aw 1/2", stop kran aw 1/2"</p>	1	Unit

45	electrophoresis bio rad minisub dan power suplay elite 300 for electrophoresis	Specifications: Gel Size (width x Length): 15 x 10 cm Sample Throughput: 10 - 60 Base Buffer Volume: 0.65 L Cell Size (W x L x H): 17,8x 25,5x 6,8 cm Distance to Electrode: 14.5 cm Bromphenol Blue (Dye) migration rate (at 75 V): 4.5 cm ReadyAgarose gels accommodated: YES Specifications of Power Pac Basic Power Supply Output specifications: 10 - 300 V, fully adjustable in 1 V steps 4 - 400 mA, fully adjustable in 1 mA steps 75 W (Maximum) Type of output: Constant voltage or constant current with automatic crossover Output terminals: 4 pair recessed banana jacks in parallel Timer : 1 min - 999 min, fully adjustable Pause/resume function: Yes Display: 3 digit LED Operating conditions : 0 - 40 C 0 - 95% humidity (noncondensing) Regulatory: EN 61010-1,CE Safety features: No-load detection sudden load change detection overload/short circuit detection overvoltage protection Input protection: Fuse on both hot and neutral Input Power (actual): 90-120 or 198-264 VAC, 50/60 Hz, autoswitching Dimensions (WxDxH): 21 x 24,5 x 6,5 cm Weight: 1,1 kg (2,4 lb)	1	Unit
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#### E. Sumber Dana dan Perkiraan Biaya

1. Sumber Dana Pengadaan ini Anggaran Universitas Padjadjaran Tahun 2025
2. Total Harga Perkiraan Sendiri senilai Rp. 1.709.475.314,00 (satu miliar tujuh ratus sembilan juta empat ratus tujuh puluh lima ribu tiga ratus empat belas rupiah)

#### F. Cara Pelaksanaan/Mekanisme Kegiatan

Pengadaan ini akan dilakukan dengan metode tender melalui sistem pengadaan secara elektronik pada laman <https://eproc.unpad.ac.id/>

#### G. Alamat Tujuan Pengiriman Barang

Tempat tujuan pengiriman berlokasi di :  
Fakultas Perikanan dan Ilmu Kelautan Universitas Padjadjaran  
Jalan Ir. Soekarno KM. 21 Jatinangor

#### H. Penanggungjawab dan Pelaksana Kegiatan

Pelaksana Pemilihan : Kantor Layanan Pengadaan  
Penanggung Jawab Pelaksanaan : Pembuat Komitmen

#### I. Waktu Pelaksanaan Pekerjaan

Pelaksanaan pekerjaan ini dilaksanakan dalam kurun waktu 90 (sembilan puluh) hari kalender sejak terbitnya Surat Pesanan

Sumedang, 20 Januari 2025  
Pembuat Komitmen,