

**SENARAI PERALATAN DAN CADANGAN KADAR CAJ BAHARU PERKHIDMATAN PERALATAN PENYELIDIKAN FAKULTI SAINS
DAN MATEMATIK UNIVERSITI PENDIDIKAN SULTAN IDRIS, TANJONG MALIM, PERAK**

Bil	Peralatan	Kos Penyelenggaraan Pertahun	Bahan pakai buang/habis	CAJ UPSI SEKARANG	CADANGAN CAJ PENGURANGAN	JUSTIFIKASI
1	Inductively Coupled Plasma (ICP-OES) + Persediaan	RM5,500.00	Purified Argon: RM320.00	RM30/element/sample RM50	RM15/element/sample (Larutan piawai disediakan) RM15/element/sample (Tanpa larutan piawai) RM50 (Sample mentah)	Caj baharu ini dijangka dapat menampung kos penyelenggaraan peralatan disebabkan penggunaan yang banyak
2	Atomic Absorption Spectrometry (AAS) + Persediaan	RM3,000.00	1. H.P.D Acetylene 6.3m3 : RM300.00 2. Nitrous Oxide	RM15/element/sample RM50	RM10/element/sample (Larutan piawai disediakan) RM15/element/sample (Tanpa larutan piawai) RM50 (Sample mentah)	
3	Mercury Analyzer + Persediaan	RM3,800.00	Purified Nitrogen : RM290.00	RM30/element/sample RM50	RM10/element/sample (Reagen dan larutan piawai disediakan) RM15/element/sample (Tanpa reagen dan larutan piawai) RM50 (Sample mentah)	
4	Gas Chromatography Mass Spectrometry (GCMS)	RM5,000.00	Purified Helium: RM950.00	RM70/sample/run	RM20/sample/run (Fasa gerak disediakan) RM40/sample/run (Tanpa fasa gerak)	

5	Gas Chromatography GC)FID/ECD/TCD Detector	RM2,600.00	1. Purified Air : RM350.00 2. Purified Helium : RM950.00 3. Purified Hydrogen	RM40/sample/run	RM20/sample/run (Fasa gerak dan disediakan) RM40/sample/run (Tanpa fasa gerak)
6	High Pressure Liquid Chromatography (HPLC) + Persediaan	RM5,000.00	Every 100 inject :- 1. Septa : RM200.00/10@pack 2. Ferrule for liner : RM100.00/100pcs 4. Ferrule for column : RM200.00/10pcs 1.2mL Vial : RM500.00/50@pack 2. Microfilter : RM150.00/box 3. Solvent (HPLC Grade): RM200.00/bottle Based on usage:- 1. Column: RM2,800.00 Every 5000 lifetime 1. DAD Detector : RM6,500.00 2. Fluorescent Detector : RM3,500.00	RM40/sample/run RM50	RM15/sample/run (Turus, fasa gerak dan piawai disediakan) RM30/sample/run (Tanpa urus, fasa gerak dan piawai)
7	CHNS Analyzer	RM3,500.00	Setiap 150sample:- 1. 1/2" s/s tube with main fold stainless : RM1,500.00 2. Bottom o-ring for 18mm OD quartz reactor : RM271.00 3. Ferrules for 2mm tubing (10pcs) RM286.00 4. Quartz Wool Flask: RM214.00 5. Copper Oxide Wire : RM271.00 6. Copper Reduced Wire 0.8 : RM400.00 7. Tin Capsule	RM50/sample	RM15/sample

Lampiran 8(II)

			Container : RM280.00 8. Vanadium Pentoxide : RM786.00 1. Purified Helium: RM950.00 2. Purified Oxygen RM280.00			
8	Fourier Transform Infrared Spectroscopy (FTIR)	RM1,900.00	Every 2@3 year:- 1. Ever Glo Mid-IR/Far-IR Source: RM3,239.42 2. Detector : RM29,559.74 3. Laser : RM12,552.77 4. KBr Window : RM2,336.43	RM40/sample	RM20/sample	
9	UV-Vis Spectrophotometer + Persediaan	RM3,000.00	Every 2@3 year:- Tungsten Halogen Lamp Assembly : RM557.00 UV-Lamp Complete-ELP : RM3,350.00	RM30/sample RM50	RM15/sample	
10	Bomb Calorimeter			RM60/(triplicates)	RM20/(triplicates)	
11	Thermogravimetric Analyzer (TGA)	RM3,00.00	1. Purified Air: RM350.00 2. Purified Nitrogen: RM290.00 3. Purified Oxygen: RM280.00	RM60/80/100sample	RM30/sample	
12	Differential Scanning Calorimeter (DSC)	RM3,00.00	Purified Nitrogen: RM290.00	RM60/80/100/sample	RM30/sample	
13	High Performance ion Chromatography (HPIC)	RM5,000.00		RM30/sample	RM10/sample/run (Turus dan piawai disediakan) RM30/sample/run (Tanpa turus dan piawai)	
14	High Resolution Field Emission Scanning Electron Microscope (FESEM) + EDX	1. Copper grid – 1 pack (50 unit) sekali setahun. 3. Gas Argon (sputter coater) – 2 sekali setahun 4. Carbon double-sided tape- 1 gulung 2 tahun sekali	Liquid CO2 : RM135.00	RM150/sample RM50/sample	RM40/sample (SEM) RM30/sample (EDX)	
16	Fluorescence + Persediaan	RM3,500.00		RM50/sample RM50	RM15/sample	Caj baharu ini dijangka dapat menampung kos

Lampiran 8(II)

					RM30 (Sample mentah)	penyelenggaraan peralatan disebabkan penggunaan yang banyak
17	Dual Column Table Top Electromechanical Testing System			RM40/sample	RM10/sample	
18	Gel Permeation Chromatography (GPC) + Persediaan	RM6,500.00		RM100/sample/run RM50	RM15/sample/run (Turus, fasa gerak dan piawai disediakan) RM30/sample/run (Tanpa turus, fasa gerak dan piawai) RM50 (Sample mentah)	
19	Optical Polarising Microscope	RM1,900.00		RM50/sample RM50	RM10/sample RM50 (Sample mentah)	
20	Potentiostat/Galvanostat/Zero Resistance Analyzer + Persediaan	TIADA	Purified Nitrogen : RM290.00	RM50/element/sample RM50	RM5 per jam (Elektrod sendiri) RM10/element/sample (Tanpa elektrod) RM20 (Sample mentah)	
26	Raman Spectroscopy	RM8,000.00		RM250/sample	RM20/sample	

SAMPLE MENTAH : Sample yang perlu diolah sebelum dianalisis

