Sinopsis Kursus

Tajuk Kursus: Kimia Alam Sekitar (Environmental Chemistry)

Kod Kursus : ESC 4001

Kredit : 3 (2+1)

Sesmester : Kedua 2008/2009

Prasyarat : Tiada

Kursus ini memperkenalkan prose's kimia dalam alam sekitar. Tajuk yang meliputi asid dan bes, system karbonat, alkalinity, kompleksasi logam, reaktiviti partikel, tabiat konservatif dan non-konservatif bagi partikel, tabiat pemisahan pepejal dan koloid, kimia air bersih dan tercemar, kimia tanah dan pencemaran udara. Proses pengangkutan dan taburan, tindakbalas fiziko/kimia sebatian dalam air asli akan diselidik. Topik-topik khas seperti kedapatan biologi, penambahan biologi, metabolisme dan degrdasi bahan kimia, bio-pemonitoran, ramalan dan permodelan nasib abahn pencemar dalam alam sekitar akan diperincikan. Kesan perindustrian, perbandaran akan pertambahan penduduk akan dikaitkan dengan prose's bigeokimia yang berlaku. Perbincangan mengenai alatan mutakhir analisa bahan pencemar akan dikupas.

*(This course introduces concepts of chemistry in the environment. Topics covered include acids and bases, carbonate system, alkalinity, metal complexation, particles reactivity, conservative and non-conservative behaviour of particles, portioning behaviour of solids and colloids, chemistry of natural and polluted waters, soil chemistry and atmospheric pollution, transport and distribution processes, physical/biochemical reactions of compound in natural waters will be investigated. Special topics on bioavailability, bioaccumulation, metabolism and degradation of chemicals will also be discussed. Biomonitoring, prediction and pollutant fate modeling in environmental compartments will be detailed out. Impact of industrialization and population explosion will be related to biogeochemical processes. Latest state-of-the-art equipments in chemical and environmental analysis will be explored)*

Weekly Topics:

1. Introduction to environmental Chemistry
2. Issues in Environmental Chemistry in Malaysia
3. Issues in Environmental Chemistry in the world
4. Brief overview of fundamental chemistry; acids and bases, alkalinity
5. Biogeochemical cycles: hydrologic, carbon, nitrogen

   TEST 1
6. Conservative and non-conservative behaviour of particles
7. Partitioning behaviour of particles

8. Special topics on bioavailability, bioaccumulation, metabolism and degradation of chemicals and pollutants
9. Biomonitoring, prediction and pollutant fate modeling in environmental compartments
10. Impact of industrialization and population explosion will be related to biogeochemical processes

    TEST 2

11. Equipments in chemical and environmental analysis - ICPMS
12. Equipments in chemical and environmental analysis - HPLC
13. Equipments in chemical and environmental analysis – GCMS
14. Equipments in chemical and environmental analysis – LCMS
15. FINAL EXAM