

**BIDANG PENGAJIAN FAKULTI PENGAJIAN ALAM SEKITAR
(Field of Studies for Faculty of Environmental Studies)**

1. Pemuliharaan dan Kualiti Alam Sekitar

Environmental Quality and Conservation

- Kualiti Air
- Kualiti Udara
- Pemuliharaan Tanah
- Kimia Alam Sekitar
- Kesihatan dan Keselamatan Alam Sekitar Penilaian Pendedahan Kimia
- Biodiversiti
- Pemulihan Alam Sekitar
- Biologi Pencemaran
- Model Hubungan Tanah-Air-Tanaman

- *Water Quality*
- *Air Quality*
- *Land Conservation*
- *Environmental Chemistry*
- *Environmental Health and Safety*
- *Chemical Exposure Assessment*
- *Biodiversity*
- *Environmental Rehabilitation*
- *Pollution Biology*
- *Soil –Water- Plant Relationship Modeling*

Bidang pengajian ini meliputi pelbagai kepentingan penyelidikan dari aspek kualiti dan pemuliharaan alam sekitar. Pelajar diberi peluang menjalankan penyelidikan untuk membangunkan atau menjelaskan konsep tertentu dalam kualiti dan pemuliharaan alam sekitar yang relevan kepada aspirasi negara.

This field of study covers a wide range of research interest in the fundamental aspects of environmental quality and conservation. Students are given the opportunity to conduct research to develop or explain specific concepts in environmental quality and conservation that are relevant to the aspiration of the nation.

2. Teknologi Kawalan Pencemaran Alam Sekitar

Environmental Pollution Control Technology

- Teknologi Rawatan Sisa Pepejal
- Rawatan Sisa Toksik dan Berbahaya
- Kawalan Pencemaran Air
- Kawalan Pencemaran Udara
- Pencemaran dan Pemulihan Tanah
- Pemulihan Tapak Pelupusan
- Kawalan Pencemaran Bunyi

- *Solid Waste Treatment Technology*
- *Toxic and Hazardous Waste Treatment*
- *Water Pollution Control*
- *Air Pollution Control*
- *Soil Pollution and Remediation*
- *Landfill Rehabilitation*
- *Noise Pollution Control*

Bidang pengajian ini meliputi pelbagai kepentingan penyelidikan dari aspek masalah pencemaran alam sekitar dan kaedah pengawalan yang bersesuaian. Ini termasuklah isu pencemaran air, udara dan bunyi, pengurusan sisa pepejal bandaran dan sisa berbahaya.

This field of study covers wide range of research interest in the aspects of environmental pollution problems and appropriate control methods. This includes issues on water, air and noise pollutions, management of domestic and hazardous wastes.

3. Pemodelan dan Sistem Alam Sekitar

- Ekologi Perindustrian
- Pengangkutan Tanah dan Endapan
- Penilaian Tanah Runtuh
- Geomorfologi Alam Sekitar
- Klimatologi dan Meteorologi
- Ekofisiologi
- Geologi Alam Sekitar
- Sistem Tenaga
- Penilaian Kitaran Hayat
- Pemodelan Kualiti Air
- Pemodelan Pencemaran Udara
- Pemodelan Hakisan Tanah
- Statistik Alam Sekitar
- Envirometrik
- Penderiaan Jarak Jauh dan Sistem Maklumat Geografi Alam Sekitar
- Forensik Alam Sekitar
- Penilaian Risiko dan Bencana Alam Sekitar
- Pemodelan Meteorologi
- Aplikasi Kepintaran Buatan untuk Alam Sekitar
- Pemodelan Alam Sekitar

Bidang pengajian ini meliputi pelbagai kepentingan penyelidikan dari aspek sistem dan proses alam sekitar serta interaksinya pada masa dahulu dan kini serta di masa hadapan. Bidang penyelidikan ini bertujuan memberi kefahaman yang lebih baik mengenai sistem alam sekitar seterusnya menambahbaik pengurusan interaksi antara manusia dengan sistem alam sekitar.

Bidang pengajian ini juga meliputi analisis alam sekitar dengan memberi tumpuan dalam pemodelan kesan amalan pengurusan dan perubahan alam sekitar. Kajian juga melibatkan penilaian kepada pelbagai model.

4. Ekosistem Marin dan Air Tawar

- Ekosistem Air Tawar
- Kajian Muara
- Sains Pantai dan Marin

Bidang pengajianan ini meliputi ekosistem daratan dan marin berhubung dengan aliran tenaga, kitaran biogeokimia, dinamik ekosistem akuatik dan kesan pencemaran oleh manusia.

Environmental System and Modeling

- *Industrial Ecology*
- *Soil and Sediment Transport*
- *Landslide Assessment*
- *Environmental Geomorphology*
- *Climatology and Meteorology*
- *Ecophysiology*
- *Environmental Geology*
- *Energy Systems*
- *Life Cycle Assessment*
- *Water Quality Modeling*
- *Air Pollution Modeling*
- *Soil Erosion Modeling*
- *Environmental Statistic*
- *Environmetrics*
- *Environmental Remote Sensing and Geographical Information System*
- *Environmental Forensics*
- *Environmental Disaster and Risk Assessment*
- *Meteorological Modeling*
- *Application on Artificial Intelligence for Environment*
- *Environmental Modeling*

This field of study covers wide range of research interest in the aspects of environmental systems, their processes, and their interactions in the present, past and future. The discipline is aimed at a better understanding of environmental systems thereby improving the management of human interaction with the system environment.

This field of study also covers environmental analysis with a focus in modeling effects of management practices and environmental changes. Evaluation of various models will also be included.

Marine and Freshwater Ecosystem

- *Freshwater Ecosystem*
- *Estuarine Studies*
- *Coastal and Marine Science*

This field of study covers terrestrial and marine aquatic ecosystems in relation to energy flow, biogeochemical cycles, aquatic ecosystem dynamics and effects of pollution by man.

5. Hidrologi dan Hidrogeologi Alam Sekitar

Environmental Hydrology and Hydrogeology

- Hidrologi Kawasan Tadahan
- Pengurusan Air Bawah Tanah
- Pengurusan Sumber Air
- Pengurusan Kawasan Tadahan Bandaran
- Hidrologi Pulau
- Hidrogeokimia
- Pemodelan Kawasan Tadahan
- Pemodelan Hidrologi dan Sumber Air
- Pemodelan Air Bawah Tanah
- Pencemaran Air Bawah Tanah
- Pengurusan Sumber Air dan Hidrologi

- *Watershed Hydrology*
- *Groundwater Management*
- *Water Resources Management*
- *Urban Watershed Management*
- *Island Hydrology*
- *Hydrogeochemistry*
- *Watershed Modeling*
- *Hydrology and Water Resource Modeling*
- *Groundwater Modeling*
- *Groundwater Pollution*
- *Hydrology and Water Resource Management*

Bidang pengajian ini meliputi pelbagai kepentingan penyelidikan dalam aspek sains air di peringkat lembangan dan akuifer bawah tanah. Fokus penyelidikan diberi penekanan kepada kepentingan air sebagai sumber berkekalan.

This field of study covers a wide range of research interests in the aspect of water science on watershed and groundwater aquifer. Research focus is in the roles of water as a sustainable resource. Focus of research is in the role of water as sustainable resource.

6. Ekonomi, Perancangan dan Pengurusan Alam Sekitar

Environmental Economics, Planning and Management

- Perancangan Alam Sekitar
- Pengurusan Alam Sekitar
- Penilaian Kesan Alam Sekitar
- Perancangan Bandar dan Wilayah
- Pengurusan Kawasan Pantai
- Perancangan Pengangkutan dan Pengurusan
- Pengurusan Sisa Pepejal
- Kemampanan Alam Sekitar
- Ekopelancongan
- Pengurusan Bandar
- Sistem Pengurusan Kualiti Alam Sekitar
- Pengurusan Strategik Alam Sekitar
- Penilaian Impak Sosial
- Pengurusan Pencemaran Bunyi
- Gender dan Pengurusan Sumber
- Perakaunan Sumber Asli
- Perdagangan dan Alam Sekitar
- Undang-undang Alam Sekitar

- *Environmental Planning*
- *Environmental Management*
- *Environmental Impact Assessment*
- *Urban and Regional Planning*
- *Coastal Area Management*
- *Transport Planning and Management*
- *Solid Waste Management*
- *Environmental Sustainability*
- *Ecotourism*
- *Urban Management*
- *Environmental Quality Management System*
- *Strategic Environmental Management*
- *Social Impact Assessment*
- *Noise Pollution Management*
- *Gender and Resource Management*
- *Natural Resources Accounting*
- *Trade and Environment*
- *Undang-undang Alam Sekitar*

Bidang pengajian ini meliputi kepentingan penyelidikan dalam merancang dan mengurus alam sekitar untuk penyediaan pembangunan mampan. Ianya merangkumi aspek penyediaan pelan fizikal dan strategi berkaitan alam sekitar

This field of study covers the importance of research in planning and managing the environment for sustainable development. It covers the preparation of physical plans and strategies related to the environment on pre,

sebelum, semasa dan selepas pembangunan dijalankan. Penyelidikan juga boleh dijalankan dalam aspek penilaian ke atas pelan pembangunan, penyediaan model pembangunan mampan dalam bidang tertentu seperti perancangan bandar, pembentukan sistem pengangkutan dan jalanraya, pelan pengurusan alam sekitar dan penilaian indikator pembangunan mampan.

during and post development. Research may also be carried out in the aspect of evaluation of development plans, preparation of a sustainable development model in specific areas such as urban planning, construction and road transportation systems, environmental management plan and assessment of sustainable development indicators.

Bidang pengajian ini juga meliputi teori atau kajian empirikal kesan ekonomi dasar alam sekitar negara atau tempatan di seluruh dunia. Isu-isu tertentu termasuk kos dan faedah alternatif dasar alam sekitar untuk menangani pencemaran udara, kualiti air, bahan-bahan toksik, sisa pepejal, dan pemanasan global.

This field of study also covers theoretical or empirical studies of the economic effects of national or local environmental policies around the world. Particular issues include the costs and benefits of alternative environmental policies to deal with air pollution, water quality, toxic substances, solid waste, and global warming.

7. Dasar dan Tadbir Urus Alam Sekitar

- **Dasar Sumber dan Alam Sekitar |**
- **Tadbir Urus dan Rejim Pentadbiran**
- **Perjanjian Alam Sekitar Pelbagai Hala**
- **Undang-undang Alam Sekitar**

Environmental Policy and Governance

- ***Environmental and Resource Policy***
- ***Governance and Administrative Regimes***
- ***Multilateral Environmental Agreement***
- ***Environmental Law***

Bidang pengajian ini meliputi penyelidikan mengenai pelbagai topik dan isu semasa berkaitan dasar alam sekitar sama ada di peringkat tempatan mahupun antarabangsa. Fokus turut diberikan kepada aspek tadbir urus alam sekitar yang merangkumi beberapa prinsip penting seperti kebebasan, keterbukaan dan ketelusan, akauntabiliti, integriti, kejelasan tujuan serta keberkesanan. Penyelidikan dalam bidang ini turut meliputi aspek perundangan tempatan dan antarabangsa termasuk pelaksanaan serta penguatkuasaan rejim perundangan berkaitan untuk mencapai pengurusan dan tadbir urus alam sekitar yang mampan.

This field of study covers researches on various topics and contemporary issues related to national as well as international environmental policies. Focus is also given to environmental governance aspect which comprises several important principles such as independence, openness and transparency, accountability, integrity, clarity of purpose and effectiveness. Researchers in this field also cover legislative aspect at national or international level including implementation and enforcement of relevant legal regime to achieve sustainable environmental management and governance.

8. Pendidikan dan Etika Alam Sekitar

- **Falsafah Alam Sekitar**
- **Penyertaan**
- **Undang-undang Alam Sekitar**
- **Kesedaran Alam Sekitar**
- **Pendidikan Tidak Formal Alam Sekitar**
- **Pembangunan Masyarakat**

Bidang pengajian ini meliputi falsafah yang digunakan dalam mengkaji asas konsep nilai-nilai alam sekitar serta isu yang lebih konkrit sekitar sikap masyarakat, tindakan dan dasar untuk melindungi dan mengekalkan alam semulajadi.

Bidang pengajian ini juga meliputi prinsip asas dan matlamat pendidikan alam sekitar. Di samping itu, bidang ini juga merangkumi aspek pendidikan di peringkat sekolah dan kolej khususnya berkaitan dengan teknik pengajaran dan pembelajaran, peranan pentadbiran pendidikan dan aktiviti berkaitan dengan pendidikan alam sekitar.

Environmental Education and Ethics

- ***Environmental Philosophy***
- ***Participatory***
- ***Environmental Law***
- ***Environmental Awareness***
- ***Non-Formal Environmental Education***
- ***Community Development***

This field of study covers applied philosophy that studies the conceptual foundations of environmental values as well as more concrete issues surrounding societal attitudes, actions, and policies to protect and sustain the nature.

This field of study also covers basic principles and environmental education goals. In addition, this area also encompasses education in schools and colleges specifically related to teaching and learning techniques, the role of educational administration and activities related to environmental education.