

Kejuruteraan Tanah dan Air

Bidang pengajian ini adalah berkenaan tanah dan air sebagai dua sumber yang amat berharga. Kejuruteraan membantu memulihara dua sumber ini dengan kajian inetraksi di antara tanah, tanaman dan air yang mempengaruhi cara dua sumber ini digunakan dalam merancang sistem pengairan dan saliran, pengabdian tanah dan air, dan kemudahan pengeluaran pertanian. Kejuruteraan dan keterampilan merekabentuk menggunakan alat seperti pintar buatan, penderiaan jauh, dan pemodelan GIS diaplikasi dalam menyelesaikan masalah tanah dan air yang melibatkan komuniti pertanian. Penyelidikan projek pengairan dan penyaliran dalam industri landskap pertanian dan taman rekreasi memerlukan penggunaan kejuruteraan maklumat, pengautomatan, penderiaan jarak jauh dan GIS. Penyelidikan adalah ke arah penyelesaian yang lebih baik dalam menangani masalah pembangunan sumber tanah dan air, pengurusan sistem pengairan dan saliran, kaedah mengurangkan dan mengawal hakisan tanah dan mendapan, dan kaedah untuk mengurangkan dan mengawal pencemaran laluan air, sungai, dan tasik dan pemulihan air. Isu yang relevan termasuk meningkatkan produktiviti melalui rekabentuk dan pengurusan sistem pengairan dan saliran, kawalan hakisan dan mendapan, kualiti dan kuantiti air, sistem maklumat geospasial dan kawalan pencemaran punca tak setempat.

Soil And Water Engineering

This field is also known as soil and water resources engineering. Engineering aids the conservation of these two resources through research on the interaction between soils, plants, and water, such as the way these resources are used in the planning of irrigation and drainage systems, soil and water conservation, as well as agricultural production facilities. With the application of tools such as artificial intelligence, remote sensing, and GIS modeling, systems are designed to solve problems related to soil and water that affect the agricultural communities. Research on irrigation and drainage projects in the agricultural landscaping industry and recreational parks require the use of information engineering, automation, remote sensing and GIS. Research is focused on coming up with better solutions to problems in land and water resources development, and management of irrigation and drainage systems; as well as on methods to reduce and control erosion and sedimentation, and methods to reduce and control pollution of streams, rivers and lakes, and methods for water treatment. Relevant issues include increasing productivity through irrigation and drainage system design and management, control of soil erosion and sedimentation, water quality and quantity, geospasial information system, and non-point source pollution control.