

Khaja Bandanawaz University
Syllabus – Geo informatics
PhD entrance Exam

Remote Sensing: Components, platforms, Principles of electro-magnetic radiations-atmospheric windows, energy matter interactions; Fundamentals of aerial photography- classification of aerial photography, scale, resolution, geometric characteristics of aerial photographs, photo recognition elements; Elements of visual interpretation; Sensors; Remote Sensing Data Products; Thermal infrared remote sensing; Radar and Lidar remote sensing.

Digital Image Processing: Image data formats. Geometric correction, geometric errors, types of geometric corrections and mosaicking. Image enhancement: Image reduction and magnification, contrast enhancement-linear and nonlinear enhancements, Band ratioing, spatial filtering- spatial convolution filtering, Fourier transformation, principal component analysis.

Remote Sensing Applications:

Interpretation in lithological identification and structural analysis, Identification and mapping of structural features (faults, fractures, folds, joints)

Urban development planning, management planning, settlement geography, Regional planning. Urban area interpretation, Space use, land use planning.

Introduction to GIS; Geographic data and data measurement map basics, basic geographic concepts; data models, data structures and data input; Global Positioning Systems; Database management; Data Analysis; GIS Project Design and Management

Rainfall runoff modelling, groundwater modelling, water quality modelling and flood inundation mapping and modelling. Drought monitoring, cropping pattern change analysis, performance evaluation of irrigation commands