DS 703 Geographic Information Systems

Instructor(s): S. Rajagopalan, Uttam Kumar

Pre-requisites: NIL

Credits: 4

This course will help students understand how to obtain and analyse geographic data sets. It will do so by introducing principles, applications, trends and pertinent research issues of geographic information systems and sciences, including remote sensing (RS), cartography, geography and global positioning systems (GPS). Hands on experience in solving problems with spatial analysis will be provided using geographic information systems software (specifically open source tool sets).

S. No.	Topics Covered
1	Introduction to GIS
2	Lat, Long, Datum
3	Scale, Resolution and accuracy
4	Introduction to Remote Sensing
5	Frequencies, Bands and Features
6	Classification
7	Automatic Extraction
10	GPS
11	GPS and DGPS
12	Spatial Data Structures _ Vector
13	Interpolation Techniques
14	Spatial Data Structures
15	Spatial Data Analysis, Geovisualization
17	Address geocoding and network
18	Clusters and patterns
19	GIS Project Design
20	DTM
21	Web GIS
22	Recent advances in GIS analytics , GML, noSQL data bases
23	Spatial Data structures in RDBMS (examples: Oracle, SAP)
24	GeoSQL
25	Case Studies

Assessment: two exams (mid term and final) 30 marks each; one project 40 marks

Course material: will be uploaded on LMS ; no text books