CE247 Aug 3:0

Remote Sensing and GIS in Water Resources and Environmental Engineering

Instructor

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Teaching Assistant

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Department: Civil Engineering

Course Time: Tue., Thu., 9:30 - 11 AM

Lecture venue: Lecture Hall, First Floor, Dept of Civil Engg

Detailed Course Page: http://civil.iisc.ernet.in/~nagesh/rs_gis.htm

Announcements

http://civil.iisc.ernet.in/~nagesh/rs_gis.htm

Brief description of the course

Basic concepts of remote sensing; Airborne and space borne sensors; Digital image Processing; Geographic Information System; Applications to rainfall-runoff modeling, Snow mechanics, Watershed management, Irrigation management, soil moisture estimation, Drought and Flood monitoring, Environment and ecology; Introduction to Microwave remote sensing and Global Positioning System (GPS); Use of relevant software for Remote sensing and GIS applications.

Prerequisites

None

Syllabus

Basic concepts of remote sensing; Airborne and space borne sensors; Digital image Processing; Geographic Information System; Applications to rainfall-runoff modeling, Snow mechanics, Watershed management, Irrigation management, soil moisture estimation, Drought and Flood monitoring, Environment and ecology; Introduction to Microwave remote sensing and Global Positioning System (GPS); Use of relevant software for Remote sensing and GIS applications.

Course outcomes

* Learning about satellite remote sensing, GIS, DEM and GPS

* Learning about digital image processing for image rectification, enhancement and information extraction.

* Application of RS, GIS, DEM and GPS is various domains including rainfall-runoff modelling, Snow mechanics, Watershed management, Irrigation management, soil moisture estimation, Drought and Flood monitoring, Environment and ecology;

Grading policy

10% for assignments, 20% for mid-term, 20#% for project/ term-paper; 50% for end-term

Assignments

Assignments (4-5) are announced in the website

http://civil.iisc.ernet.in/~nagesh/rs_gis.htm

Resources

http://civil.iisc.ernet.in/~nagesh/rs_gis.htm

1. Remote Sensing and Image Interpretation, T.M. Lillesand and R.W. Kiefer, John Wiley & Sons, 2000.
2. Remote Sensing - Principles and Interpretation, F.F. Sabins Jr, W.H. Freeman & Co., New York, 1986.
3. An Introduction to Geographical Information Systems, I. Heywood, S. Cornelius and S. Carver, Pearson Education, 1998.
4. Remote sensing in water resources management: The state of the art, Bastiaanssen, W.G.M., International Water Management Institute, Colombo, Sri Lanka, 1998.