



SNDT Women's University
Department of Geography, Pune
Certificate Course in Geoinformatics

Duration: 04 Months (180 hours theory and practical)

No. of Students: 15

Credits: 12

Course fees/ Student: 16000

Objectives: To introduce to the students the basic principles of GIS and Remote Sensing. To provide hands on training and map making. To indicate the methods of visual and digital interpretation of satellite images and Aerial photography.

Course Content

Courses	Topics	Hours	Total No. of Credits
Geographic Information system (Theory)	1.Introduction to GIS 2. Spatial data 3. Network analysis 4. Concepts of GPS	30	02
Geographic Information system (Practical)	1.Overview of the software 2. Spatial data input, Digitizing and Georeferencing 3. Map designing and symbology 4. Network analysis 5. GPS	30	02
Remote Sensing (Theory)	1.Introduction to Remote Sensing 2. Electromagnetic Radiation 3. Platforms, Sensors and Orbits 4. Aerial photography	30	02
Remote Sensing (Practical)	1.Basics of aerial photography 2. Aerial photo and image interpretation 3. Measurements	30	02
The Digital Image Processing (Theory)	1.Introduction to Digital Image Processing 2. Image enhancement techniques 3. Digital image classification	30	02



The Digital Image Processing (Practical)	1. Introduction to image processing system 2. Image enhancement techniques 3. Image classification 4. Accuracy analysis 5. Image analysis	30	02
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Suggested Readings:

- Ahmed, E. L. Rabbany (2002): Introduction to Global Positioning Systems, Artech House, Boston
- Chang, K. T. (2008): Introduction to Geographic Information Systems, Avenue of the Americas, McGraw-Hill, New York
- Longley, P. A., Goodchild, M. F., Maguire, D. J., Rhind, D. W. (2002): Geographical Information Systems and Science, John Wiley & Sons, Chichester
- Burrough, P. A. and McDonnell, R. A. (2000): Principles of Geographical Information Systems, Oxford University Press, New York
- Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2008): Remote Sensing and Image Interpretation, John Wiley & Sons, New Delhi
- Campbell, J. (2002): Introduction to Remote Sensing, Taylor & Francis, London
- Jensen, J. R. (2005): Introductory Digital Image Processing, Prentice Hall, New Jersey
- Lillesand, T. M., Kiefer, R. W. and Chipman, J. W. (2008): Remote Sensing and Image Interpretation, John Wiley & Sons, New Delhi
- Agarwal, C. S. Garg, P. K. (2000): Remote Sensing, Wheeler A. H., New Delhi
- Joseph, G. (2004): Fundamentals of Remote Sensing, Universities Press, Hyderabad, India
- Richards, J. A, Jia, X. (1999): Remote Sensing and Digital Image Processing, Springer, Verlag Berlin
- Nag, P. Kudrat, M. (1998): Digital Remote Sensing, Concept Publishing Company, New Delhi
- Sabins, F. F. (1996): Remote Sensing: Principles and Interpretation, W. H. Freeman Company, New York
- ERDAS (2010): ERDAS field Guide, ERDAS incorporation, Norcross, GA, USA
- Gupta, R. P. (2003): Remote Sensing Geology, Springer, Verlag Berlin
- Mitchell, A. (1999): The ESRI guide to GIS analysis, Redlands
- Chand, B., Majumdar, D. D. (2001): Digital Image Processing Analysis Prentice- Hall of India, New Delhi