| Course Type | Course Code | Name of the Course | L | T | P | Credits |
|---|---|---|---|---|---|---|
| DP1 | NMNC512 | Remote Sensing and Image Processing Lab | 0 | 0 | 3 | 1.5 |

**Learning outcomes:** students will be able to process the remotely sensed satellite data to get different level of products.

**Course Objectives:** Students will learn the practical aspects of remotely sensed (satellite) data processing acquired in optical and infrared region of electromagnetic energy.

| Unit No. | Topics to be covered | Contact Hours | Learning Outcomes |
|---|---|---|---|
| I | Introduction to different types of remote sensing data products | 3 | Students will know the different types of remote sensing data products |
| II | Training on visual interpretation and analysis of a multi-spectral satellite data and stereo pair panchromatic satellite data. | 3 | Students will be able to analyse the satellite image visually |
| III | Demo on different types of remote sensing based software and Initial Statistics Extraction from satellite data. | 3 | Students will know the capability of different types of remote sensing based software and will be able to extract the statistical information of satellite data |
| IV | Atmospheric Correction applied on satellite image. | 3 | Students will be able to apply atmospheric correction on satellite data |
| V | Geometric Correction applied on satellite image | 3 | Students will be able to apply Geometric Correction on satellite data |
| VI | Image Enhancement techniques | 3 | Students will be able to apply Image Enhancement techniques on satellite data |
| VII | Image transformation/Interpretation of Indices derived from Multispectral Satellite Data | 3 | Students will be able to transform the image |
| VIII | Fusion of Multispectral satellite data and panchromatic satellite data | 3 | Students will be able to generate a value added product |
| IX | Land Use/Land Cover (LULC) Classification using Multispectral Satellite Data | 3 | Students will be able to generate a derived product (LULC classified Map) |
| X | Land Use/Land Cover (LULC) change detection using Multispectral Satellite Data | 3 | Students will be able to generate a derived product (LULC Change detection Map) |
| XI | Mineral Mapping using Hyper spectral Satellite Data | 3 | Students will be able to generate a derived product (Mineral Map) |
| XII | Land Surface Temperature (LST) Mapping using Thermal Infrared (TIR) satellite Data/Land Surface Temperature Radiometer Data | 3 | Students will be able to generate a derived product (LST Map) |
| | Mini Project | 3 | |
| | Practice & Review | 3 | |
| | **Total** | 42 | |

**Text Books**

1. George Joseph (2005), Fundamentals of Remote Sensing
2. John A. Richards (2012), Remote Sensing and Digital Image Analysis

**Reference Books**

1. Thomas L., Ralph W. Kiefer, and Jonathan C. (2015), Remote Sensing and Image Interpretation.